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DEPARTMENT OF ECOLOGY

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March 1, 2016

16-NWP-047

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United States Department of Energy
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Ms. Stacy L. Charboneau, Manager
Richland Operations Office
United States Department of Energy
PO Box 550, MSIN: A7-50
Richland, Washington 99352

Re: *Nuclear Waste Program Guidance for Assessing Closure Requirements in the Draft Hanford Facility Dangerous Waste Permit, Revision 9 – WA7890008967*, (Closure Requirements – Conceptual Agreement Package), November 2015

Dear Mr. Smith and Ms. Charboneau:

Enclosed is a copy of the Closure Requirements Conceptual Agreement Package (CAP). The Department of Ecology (Ecology) will use the CAP to review the draft *Hanford Facility Dangerous Waste Permit, Revision 9 – WA7890008967*.

In accordance with the Agreed Order No. DE-10156, Exhibit A, Section 1.12.1:

“Within fourteen months after Ecology’s transmittal of the Conceptual Agreement Packages to USDOE, USDOE agrees to submit to Ecology a Class 3 permit modification request to incorporate the SWOC Unit Groups into the Hanford Dangerous Waste Permit.”

Ecology will transmit eleven CAPs to the United States Department of Energy (USDOE) in support of the Agreed Order No. DE-10156. This Closure Requirements CAP is the fifth CAP submitted to USDOE.

If there are any questions regarding this letter, please contact me at john.price@ecy.wa.gov or (509) 372-7921. If there are any questions regarding the Closure Requirements CAP, please contact Kelly Elsethagen, Site-wide Rev. 9 Permit Coordinator, at kelly.elsethagen@ecy.wa.gov or (509) 372-7913.

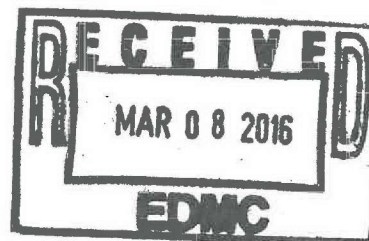
Sincerely,

John B. Price
Tri-Party Agreement Section Manager
Nuclear Waste Program

tkb

Enclosure

cc: See page 2



Mr. Smith and Ms. Charboneau
March 1, 2016
Page 2

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**NUCLEAR WASTE PROGRAM GUIDANCE FOR ASSESSING
CLOSURE REQUIREMENTS
IN THE DRAFT HANFORD FACILITY DANGEROUS WASTE PERMIT
REVISION 9 – WA7890008967**

(Closure Requirements - Conceptual Agreement Package)

November 2015

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1. OBJECTIVE

The purpose of the Conceptual Agreement Packages (CAPs) is to provide guidance to the Nuclear Waste Program (NWP) permit writers for reviewing the current draft *Hanford Facility Dangerous Waste Permit*, Revision 9, WA7890008967, (the Permit).

The CAPs will:

- Assist permit writers in identifying deficiencies and completing comment responses.
- Help identify where additional, supplemental or revised information needs to be provided in an updated/revised permit application.
- Provide guidance for development of a new draft permit, according to Washington Administrative Code (WAC) 173-303-840(7)(a) that will meet the NWP permitting criteria.

While the CAPs are to be used in reviewing the Permit, much of the Permit consists of permit application materials that were incorporated, with modifications as necessary. As a result, some of the citations in Section 6, Regulatory Matrix Map, used to evaluate permit adequacy originate from the Part B permit application requirements in WAC 173-303-806.

Some of the submitted permit application material was not incorporated into the Permit, but was retained in the Ecology Administrative Record as part of the Permit basis. The permit writer is expected to review application material used as a basis for a portion of the Permit. Section 5, Unit Group Requirements Checklists, identify when the permit writer must review the permit application information maintained in the Ecology Administrative Record.

This CAP addresses closure requirements that apply to dangerous waste management units (DWMUs) at the Hanford Facility.

2. NWP PERMITTING CRITERIA

Revisions to the Permit must meet the permitting criteria listed below. Once revisions are completed, NWP will have a Permit that is:

- **Equivalent** – Ensures compliance with the Dangerous Waste Regulations, WAC 173-303, and protection of human health and the environment.
- **Consistent** – Applies regulations consistently throughout the Permit and across the entire authorized Washington State Dangerous Waste program.
- **Enforceable** – Provides clear and specific requirements in the permit conditions.
- **Implementable** – Ensures permit requirements reflect facility conditions and permitted activities.

By using the CAPs, the permitting criteria will be met in the following ways:

Equivalent

The CAPs provide guidance to reviewers of the permit conditions, addenda, and corresponding permit application components. The guidance will help reviewers verify that the Permit meets all applicable Dangerous Waste Regulations and protects human health and the environment.

Each CAP includes a topic-specific regulatory matrix map of the Dangerous Waste Regulations that identifies where requirements are addressed in the Permit multi-tier structure.

Consistent

Each CAP includes a topic-specific checklist(s), and a table of conceptual agreements reached in working meetings with the U.S. Environmental Protection Agency, Region 10 (EPA), and Ecology's Hazardous Waste and Toxics Reduction (HWTR) Program. The checklists and conceptual agreements are cross-walked on the regulatory matrix map for permit writers to complete and submit to the NWP's Site-wide Rev. 9 Permit Coordinator. The regulatory matrix map will be used to document adherence to NWP permit criteria or to document inconsistencies that will require revision before reissuing the final Permit.

To ensure consistency with the Washington State Dangerous Waste program, the CAPs are based on both the Dangerous Waste Regulations and the Washington State Department of Ecology's Dangerous Waste Permit Application Requirements (Publication # 95-402) guidance, as well as other applicable state and federal guidance.

Enforceable

The CAPs provide guidance for writing enforceable permit conditions and addenda and indicate how references in the Permit are properly incorporated.

Implementable

The CAPs provide guidance on writing clear and specific permit conditions and addenda that reflect actual facility conditions and describe the permitted dangerous waste management activities. With such conditions, the permittee compliance obligations will be clearly identified, enhancing Ecology's ability to evaluate permittee compliance status.

3. HANFORD SITE DANGEROUS WASTE PERMIT STRUCTURE

The Hanford Facility is one dangerous waste facility, with one dangerous waste permit. The current Hanford Facility dangerous waste permit is titled the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, WA7890008967.

When the Permit is reissued, the title will change to the *Hanford Facility Dangerous Waste Permit, Revision 9*, WA7890008967.

The Hanford Facility has multiple DWMUs that treat, store, or dispose of dangerous or mixed waste. These DWMUs are either operating, closing, or are in post-closure. The DWMUs are organized administratively into multiple "unit groups," each of which are individual "chapters" in the Permit.

The structure is tiered into six main Parts as described below:

- **Part I** contains standard conditions found in all dangerous waste permits in the state of Washington. Part I also contains some conditions related to Hanford-specific legal agreements and circumstances.
- **Part II** contains general conditions that are specific to the Hanford Facility and apply to the facility as a whole.
- **Part III** contains operating unit group permit chapters for DWMUs that are still operating.¹ Each permit chapter contains:
 - Conditions specific to DWMUs in the unit group.
 - Addenda containing: Part A, waste analysis plan, process information, groundwater monitoring plan (if applicable), security, preparedness and prevention, contingency plan, training, inspection plan, closure plan, and post-closure plan (if applicable).
- **Part IV** contains conditions specific to corrective action for releases from solid waste management units, including releases to groundwater that are addressed on a groundwater operable unit basis.
- **Part V** contains closure unit group permit chapters for DWMUs in unit groups undergoing closure². Each permit chapter contains:
 - Conditions specific to DWMUs in the unit group.
 - Addenda containing: Part A, groundwater monitoring plan (if applicable), process information/waste characteristics, security, training, inspection plan, closure plan, and post-closure plan (if applicable).³
- **Part VI** contains post-closure unit group permit chapters for DWMUs in unit groups that have been closed with waste in place. Each permit chapter contains:
 - Conditions specific to DWMUs in the unit group.
 - Addenda containing: Part A, groundwater monitoring plan, security (if applicable), training, inspection plan, and post-closure plan.⁴

The descriptions of the various Parts are general descriptions, and there are exceptions. For example, the PUREX chapter of the Permit is in Part V (Closure Unit), and the operating authorization for the PUREX tunnels DWMU appears there rather than in Part III (Operating Unit).

¹ Some operating unit groups may contain DWMUs that are closing or have closed. However, the closing or closed DWMUs remain in Part III with the respective operating unit group.

² Some closure unit groups may contain DWMUs that are operating. However, the operating DWMUs remain in Part V with the respective closure unit group.

³ Some information normally provided in separate addenda, (e.g., training, security, inspections, process information/waste characteristics) may be rolled into the closure plan.

⁴ Some information normally provided in separate addenda, (e.g., training, security, inspections) may be rolled into the post-closure plan.

In addition, the Permit has several attachments containing information applicable at the Facility level. These attachments satisfy, in part, WAC 173-303 regulatory requirements. For example, Attachment 4, *Hanford Emergency Management Plan*, DOE/RL-94-02, satisfies in part the contingency plan requirements of WAC 173-303-350 and WAC 173-303-360. The remainder of the contingency plan requirements for each unit group are satisfied by the unit group contingency plans (i.e., building emergency plans).

Together, the permit conditions, addenda, and attachments must meet the WAC 173-303 Dangerous Waste Regulations applicable to permitted dangerous waste facilities.

4. HANFORD-SPECIFIC AND OTHER GUIDANCE

This section discusses:

- The location of closure requirements in the Permit structure.
- Applicability of closure requirements to DWMUs in operating and closing unit groups.
- Hanford specific differences related to these requirements.
- Applicable state and federal guidance.
- Conceptual agreements reached in workshops with EPA and HWTR.

4.1 Closure Requirements in the Permit Structure

The closure requirements for DWMUs in operating and closure unit groups are contained in the following permit conditions and addenda:

- Permit Condition II.H Financial Assurance.
- Permit Condition II.J Closure and Post-Closure.
- Permit conditions specific to closure in each Operating (Part III) and Closure (Part V) unit group.
- Addendum H, Closure Plans located in Operating (Part III) and Closure (Part V) unit group permit chapters.

4.2 Applicability of Closure Requirements to DWMUs

The closure requirements of WAC 173-303-610 are applicable to unclosed DWMUs in the Permit. Closure requirements applicable to individual DWMUs must be addressed in the stand-alone closure plan included in the individual operating (Part III) and closure (Part V) chapters of the Permit. Closure plans must contain information that demonstrates compliance with WAC 173-303-610 requirements, including other closure requirements specific to DWMU types found in WAC 173-303-630 through -695. This CAP will also be used to assess closure plans for DWMUs not currently in the Permit, but that will be included through the permit modification process.

This CAP also provides guidance for the corresponding information that must be provided, according to WAC 173-303-806, in Part B of the permit application, and that will be used as the basis for enforceable requirements of the Permit. These requirements are identified in Section 6,

Regulatory Matrix Map. For WAC 173-303-645 requirements, refer to the Groundwater Monitoring Requirements CAP.

Some DWMUs are subject to contingent closure requirements that must be included in the closure plan. For example, tank systems without compliant secondary containment are required to have a contingent landfill closure plan in place as well as a clean closure plan (i.e., closure by removal or decontamination). When a contingent closure plan is required, a contingent post-closure plan is also required. Post-closure and contingent post-closure plan requirements are addressed in the Post-Closure Requirements CAP.

The regulations discuss “partial closure” and “final closure for the facility.” For final status facilities, “partial closure” means the closure of a DWMU in accordance with the applicable closure requirements of WAC 173-303-600 through -695, at a facility that contains other active DWMUs. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems), landfill cell, surface impoundment, waste pile, or other DWMU, while other units of the same facility continue to operate. At Hanford, final closure of the facility will not be achieved until all DWMUs have been certified as closed, and those certifications are accepted by Ecology.

4.3 Hanford Differences for Closure Requirements

1. Incomplete Closure Plans for DWMUs That are Closing

Problem Statement: DWMUs that are closing may only have an Addendum A, Part A, and Addendum H closure plan, established in the Permit, without other needed addenda necessary to support closure (e.g., security, process information, training, inspection, etc.). Without this information, Ecology may not be able to complete review of the closure plan, or establish all permit conditions necessary for all activities that must continue through the closure period.

Discussion: The *Hanford Federal Facility Agreement and Consent Order* (HFFACO) structure requires the U.S. Department of Energy (USDOE) to submit a Part B permit application to Ecology for operating DWMUs, and to submit closure plans in accordance with WAC 173-303-610 for closing DWMUs. This structure has resulted, in some cases, in closure plans that do not have all of the information necessary for closure of the DWMUs. For example, a description of the design and operation of a DWMU would normally appear in Addendum C, Process Information, and be necessary to ensure the various closure activities are complete and appropriate. Security information normally appears in Addendum E, Security, and is required to be performed through the closure period unless a waiver is obtained. Training and inspections specific to the closure period also need to be included. Sometimes the closure plan is complete, and includes this information directly in the closure plan, or includes the information by reference to other addenda in the Permit. The permit writer needs to carefully review the closure plan and other unit group addenda to ensure there is enough information to support closure.

Resolution: Ecology will ensure that the closure plan includes such information as necessary to properly review and approve the closure plan, as would otherwise appear in applicable permit addenda. The information may be included directly in the closure plan, or by reference.

2. No Closure Plan for Some Closing DWMUs Located Inside Canyon Facilities

Problem Statement: Some DWMUs located inside canyon facilities do not have closure plans.

Discussion: There are some DWMUs located inside canyon facilities (i.e., T-Plant, B Plant, and PUREX), that are no longer operating, and are required to close under the dangerous waste regulations. USDOE wishes to delay development of closure plans for these DWMUs to the results of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial process. Some of these DWMUs have radiological risks (e.g., DWMUs located in process cells) that may dictate what closure alternatives are implementable. For example, due to possible high radiation levels, the process cells might be used for disposal purposes, and the entire canyon building closed as a landfill. The Permittees have discussed how development and evaluation of these alternatives needs to take place under CERCLA, before viable closure options can be developed.

Resolution: All DWMUs need to be addressed by a closure plan that is included in the Permit. In general, closure plans must be included in the permit application supporting the reissue of the Permit. The only exception is the Single-Shell Tank System, as discussed in 3. below. Ecology will evaluate DWMUs located inside canyon facilities on a case-by-case basis, and make a determination on the details that need to be included in the closure plan submittal. If some of the closure plan information is unavailable to the extent required, permit conditions may be developed that require amendment of the closure plan to include the information when it is available. A recent example was the Tier 1 decision to allow the closure schedule for the 221-T tank system (located inside the T-Plant canyon) to be coordinated with submittal of a CERCLA pre-decision document (e.g., the remedial investigation/feasibility study). Where the closure schedule proposes coordination with the CERCLA pre-decision document, it must be specific to individual closure activities. As part of the decision, Ecology will include a permit condition requiring amendment of the T-Plant closure plan to include revised detailed closure actions for 221-T, and a schedule for closure. Last, Ecology will properly document in the fact sheet/statement of basis, the basis for this decision.

3. Single-Shell Tank System Closure Plan Submittals in the HFFACO

Problem Statement: The Single-Shell Tank (SST) System permit chapter does not have a Closure Plan, Addendum H.

Discussion: Tanks within the SST Closure Unit Group 4 are closing tank systems subject to the closure plan requirements of chapter 173-303 WAC. WAC 173-303-806(4) requires that a closure plan be submitted with the Part B permit application; however, the HFFACO contains milestones relating to the submittal of closure plans for specific SST Waste Management Areas. In addition, the *Washington v. Chu* decree commits Ecology to coordinate its permitting requirements with the decree.

Where there are matters addressed in the HFFACO and the *Washington v. Chu* Consent Decree regarding closure plan submittals, Ecology will incorporate those conditions by reference according to Permit Condition I.B.2. The HFFACO milestones incorporated by reference into the SST unit group permit chapter are contained in the M-045 milestone series. Closure plans for the SSTs, when submitted, will be evaluated for completeness using this CAP.

Resolution: Keep with existing permit structure.

4. No Closure Plan for Some Closing DWMUs

Problem Statement: Many DWMUs in the Permit were not addressed by an Addendum H, Closure Plan.

Discussion: The existing permit application supporting the Permit did not include closure plans for DWMUs in the unit groups identified below. Most of the missing closure plans have been submitted and are in various stages of review, with the exceptions noted below.

- **207-A South Retention Basin** (Closure Unit Group 9)
Status: Permittees submitted revised/updated closure plan as a Class 3 permit modification. Public comment completed on August 28, 2015. Ecology currently drafting permit modification.
- **216-A-29 Ditch** (Closure Unit Group 11)
Status: Submitted per M-037-02.
- **216-A-36B Crib** (Closure Unit Group 12)
Status: Submitted per M-037-02.
- **216-A-37-1 Crib** (Closure Unit Group 13)
Status: submitted per M-037-02.
- **216-B-63 Trench** (Closure Unit Group 21)
Status: Submitted per M-037-02.
- **216-S-10 Pond and Ditch** (Closure Unit Group 14)
Status: Submitted per M-037-03.
- **216-B-3 Main Pond** (Closure Unit 22)
Status: Submitted per M-037-03.
- **The Low-Level Burial Ground (Green Islands)** (Closure Unit Group 26)
Status: There are no HFFACO milestones associated with a Green Islands closure plan submittal. Ecology will require a closure plan for the new draft Permit.

Exceptions:

- **Single-Shell Tank System** (Closure Unit Group 4)
Status: See resolution in 3.
- **B Plant** (Closure Unit Group 24)
Status: See resolution in 2.
- **PUREX** (Closure Unit Group 25)
Status: See resolution in 2.

Resolution: With the exception of SSTs, all DWMUs must be addressed in a unit group closure plan for the new draft Permit, unless they are closed out in the current Rev. 8c Permit.

5. MODIFIED CLOSURE

Problem Statement: Some DWMUs in closure and post-closure unit groups in the Permit use the terminology of “modified closure” and “modified post-closure.” This terminology is not in compliance with current state and federal regulations.

Discussion/History: Permit Conditions II.K.3.a-c for modified closure have existed in the Permit from Rev. 1 (1995) through Rev. 8c (current). The January 15, 1992 Fact Sheet, states the following in regards to establishing these permit conditions:

“Closure at TSD facilities usually includes two options, clean closure (to background contaminant levels) and closure as a landfill. Ecology has identified a third option for use at the Hanford Facility. This option is a modified closure and provides for a closure to standards which combine the Residential Health Based standards identified in the Model Toxic Control Act (MTCA), Land Disposal Restriction levels, and designation levels for state

only dangerous wastes, whichever is the most stringent. This option allows for a modified postclosure. Should the permittees be able to clean up to the modified soil levels, reduced postclosure requirements may be imposed instead of a full landfill closure. These reduced postclosure requirements will be determined on a case by case basis.

This policy will allow for the integration of the RCRA closure process and the RCRA and CERCLA past practice programs. It is possible with the modified postclosure option to clean a RCRA unit to a point which is stabilized and then leave the final cleanup to the RCRA or CERCLA past practice remediation. However, the modified postclosure option will still require a postclosure permit.”

In drafting the Permit, these permit conditions were removed as they are not in compliance with current state and federal regulations.

Resolution: All references to modified closure/post-closure requirements in unit group closure and post-closure plans will be removed. Where DWMUs are eligible, the Permittee may apply for alternative closure/post-closure requirements in accordance with WAC 173-303-610(1)(e).

For Ecology to establish alternative closure/post-closure requirements under WAC 173-303-610(1)(e)⁵, the Permittee will need to include the proposed alternative requirements in the closure plan, either directly or by reference, as part of the permit application. The Permittee will need to submit a permit modification with the supporting demonstration that the unit meets the requirements in WAC 173-303-610(1)(e)(i)-(ii). Ecology will then evaluate the requirements for compliance with the criteria in WAC 173-303-610(1)(e)(i) and (ii), and the closure performance standards in WAC 173-303-610(2)(a)⁶. If Ecology determines the criteria are satisfied and the closure performance standards have been met, Ecology will approve all or part of the proposed alternative requirements. All justification of alternative requirement approvals will be detailed in the fact sheets for those DWMUs. If alternative requirements are not approved, options include the following:

⁵ WAC 173-303-610(1)(e) Except for subsection (2)(a) of this section, the director may, in an enforceable document, replace all or part of the requirements of this section and the unit-specific requirements referenced in subsection (2)(b) of this section with alternative requirements when he or she determines:

(i) A dangerous waste unit is situated among other solid waste management units or areas of concern, a release has occurred, and both the dangerous waste unit and one or more of the solid waste management units or areas of concern are likely to have contributed to the release; and

(ii) It is not necessary to apply the requirements of this section (or the unit-specific requirements referenced in subsection (2)(b) of this section) because the alternative requirements will protect human health and the environment.

⁶ WAC 173-303-610(2) Closure performance standard. The owner or operator must close the facility in a manner that:

(a)(i) Minimizes the need for further maintenance;

(ii) Controls, minimizes or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere; and

(iii) Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.

only dangerous wastes, whichever is the most stringent. This option allows for a modified postclosure. Should the permittees be able to clean up to the modified soil levels, reduced postclosure requirements may be imposed instead of a full landfill closure. These reduced postclosure requirements will be determined on a case by case basis.

This policy will allow for the integration of the RCRA closure process and the RCRA and CERCLA past practice programs. It is possible with the modified postclosure option to clean a RCRA unit to a point which is stabilized and then leave the final cleanup to the RCRA or CERCLA past practice remediation. However, the modified postclosure option will still require a postclosure permit.”

In drafting the Permit, these permit conditions were removed as they are not in compliance with current state and federal regulations.

Resolution: All references to modified closure/post-closure requirements in unit group closure and post-closure plans will be removed. Where DWMUs are eligible, the Permittee may apply for alternative closure/post-closure requirements in accordance with WAC 173-303-610(1)(e).

For Ecology to establish alternative closure/post-closure requirements under WAC 173-303-610(1)(e)⁵, the Permittee will need to include the proposed alternative requirements in the closure plan, either directly or by reference, as part of the permit application. The Permittee will need to submit a permit modification with the supporting demonstration that the unit meets the requirements in WAC 173-303-610(1)(e)(i)-(ii). Ecology will then evaluate the requirements for compliance with the criteria in WAC 173-303-610(1)(e)(i) and (ii), and the closure performance standards in WAC 173-303-610(2)(a)⁶. If Ecology determines the criteria are satisfied and the closure performance standards have been met, Ecology will approve all or part of the proposed alternative requirements. All justification of alternative requirement approvals will be detailed in the fact sheets for those DWMUs. If alternative requirements are not approved, options include the following:

⁵ **WAC 173-303-610(1)(e)** Except for subsection (2)(a) of this section, the director may, in an enforceable document, replace all or part of the requirements of this section and the unit-specific requirements referenced in subsection (2)(b) of this section with alternative requirements when he or she determines:

(i) A dangerous waste unit is situated among other solid waste management units or areas of concern, a release has occurred, and both the dangerous waste unit and one or more of the solid waste management units or areas of concern are likely to have contributed to the release; and

(ii) It is not necessary to apply the requirements of this section (or the unit-specific requirements referenced in subsection (2)(b) of this section) because the alternative requirements will protect human health and the environment.

⁶ **WAC 173-303-610(2)** Closure performance standard. The owner or operator must close the facility in a manner that:

(a)(i) Minimizes the need for further maintenance;

(ii) Controls, minimizes or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere; and

(iii) Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.

- Require additional alternative requirements that will meet the general closure performance standard in WAC 173-303-610(2)(a), and be protective of human health and the environment.
- Close by removal or decontamination (i.e., clean closure) requirements.
- Close under landfill closure requirements.

5.1 Applicable State and Federal Guidance

Applicable state and federal guidance includes but is not limited to the following:

- Guidance for Clean Closure of Dangerous Waste Units and Facilities, Ecology Publication #94-111 (Revised May 2005)
- Checklists for Closure Plans, Closure Cost Estimates, and Financial Assurance, Ecology Publication #05-04-008 (May 2005)
- Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors, Publication #05-04-006 (May 2005)
- Dangerous Waste Permit Application Requirements, Publication # 95-402 (Revised November 2013)
- EPA - Use of the Area of Contamination (AOC) Concept During RCRA Cleanups. March 13, 1996, MEMO (Discussion on when waste is generated.)
- EPA (Draft) Technical Guidance for RCRA/CERCLA Final Covers, EPA 540-R-04-007, OSWER 9283.1-26 (April 2004)

5.2 Conceptual Agreements

The following Closure Requirements Conceptual Agreements table includes conceptual agreements that were developed based on EPA review of the Permit (Ecology's HWTR Program did not review closure information in the Permit). The reference number in the first column corresponds to the comment number in the Review Comment Record (RCR) for the cited addenda. For example, LLBG Trench 31 & 34 (Add. H # 2; Conditions, Comment #s 14, 15) means: the RCR for the Low-Level Burial Grounds, Trenches 31 and 34, Addendum H, Comment number 2; and unit group permit conditions numbers 14 and 15. The checklist question number in the second column corresponds to the checklist question that addresses the conceptual agreement. The third column contains a description of the conceptual agreement.

The conceptual agreement reference number is cross-walked with the appropriate regulatory citation(s) in Section 6, Regulatory Matrix Map. The SharePoint location for the EPA RCR comments on the Permit is:

<http://partnerweb/sites/NWP/hdwp/Common/Forms/AllItems.aspx?RootFolder=%2fsites%2fNWP%2fhdwp%2fCommon%2fEPA%2dECY%20permit%20discussions%2fInput%2dcomments%2fEPA&FolderCTID=&View=%7b85D0C992%2dEB57%2d46F8%2d9E6F%2dACE184FC7461%7d>.

If the conceptual agreement is applicable to multiple closure plans, it is noted. Permit writers are responsible for ensuring conceptual agreements are appropriately applied to their unit group closure plan. The conceptual agreement table below is not comprehensive of all comment conceptual resolutions on the SharePoint system. Permit writers are responsible for reviewing all

RCRs associated with their unit group and incorporating changes and recommendations agreed to with EPA and HWTR.

- Require additional alternative requirements that will meet the general closure performance standard in WAC 173-303-610(2)(a), and be protective of human health and the environment.
- Close by removal or decontamination (i.e., clean closure) requirements.
- Close under landfill closure requirements.

5.1 Applicable State and Federal Guidance

Applicable state and federal guidance includes but is not limited to the following:

- Guidance for Clean Closure of Dangerous Waste Units and Facilities, Ecology Publication #94-111 (Revised May 2005)
- Checklists for Closure Plans, Closure Cost Estimates, and Financial Assurance, Ecology Publication #05-04-008 (May 2005)
- Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors, Publication #05-04-006 (May 2005)
- Dangerous Waste Permit Application Requirements, Publication # 95-402 (Revised November 2013)
- EPA - Use of the Area of Contamination (AOC) Concept During RCRA Cleanups, March 13, 1996, MEMO (Discussion on when waste is generated.)
- EPA (Draft) Technical Guidance for RCRA/CERCLA Final Covers, EPA 540-R-04-007, OSWER 9283.1-26 (April 2004)

5.2 Conceptual Agreements

The following Closure Requirements Conceptual Agreements table includes conceptual agreements that were developed based on EPA review of the Permit (Ecology's HWTR Program did not review closure information in the Permit). The reference number in the first column corresponds to the comment number in the Review Comment Record (RCR) for the cited addenda. For example, LLBG Trench 31 & 34 (Add. H # 2; Conditions, Comment #s 14, 15) means: the RCR for the Low-Level Burial Grounds, Trenches 31 and 34, Addendum H, Comment number 2; and unit group permit conditions numbers 14 and 15. The checklist question number in the second column corresponds to the checklist question that addresses the conceptual agreement. The third column contains a description of the conceptual agreement.

The conceptual agreement reference number is cross-walked with the appropriate regulatory citation(s) in Section 6, Regulatory Matrix Map. The SharePoint location for the EPA RCR comments on the Permit is:

<http://partnerweb/sites/NWP/hdwp/Common/Forms/AllItems.aspx?RootFolder=%2fsites%2fNWP%2fhdwp%2fCommon%2fEPA%2dECY%20permit%20discussions%2fInput%2dcomments%2fEPA&FolderCTID=&View=%7b85D0C992%2dEB57%2d46F8%2d9E6F%2dACE184FC7461%7d>.

If the conceptual agreement is applicable to multiple closure plans, it is noted. Permit writers are responsible for ensuring conceptual agreements are appropriately applied to their unit group closure plan. The conceptual agreement table below is not comprehensive of all comment conceptual resolutions on the SharePoint system. Permit writers are responsible for reviewing all

RCRs associated with their unit group and incorporating changes and recommendations agreed to with EPA and HWTR.

Closure Requirements Conceptual Agreements

Ref. No.	Checklist Question #	EPA Conceptual Agreements
LLBG Trench 31& 34 (Add. H # 2; Permit Conditions, Comment #s 14, 15) DST & 204-AR WUS (Add. H # 23, 70; Permit Conditions, Comment #s 2, 33) 241-CX (Permit Conditions, Comment # 5, 8) LLBG Green Islands (Comment #s 5, 6, 7)	Required throughout checklist questions.	<p>Complete closure plan. Closure plans must be complete and able to be implemented from the effective date of the Permit.</p> <p>(Applicable to all closure plans except SST System, where Tier 1, 2, 3 closure plan submittals have been and will be negotiated through Tri-Party Agreement milestones, or where exceptions have been made by Ecology on a case-by-case basis.)</p>
DST& 204-AR WUS (Add. H, Comment # 73) 241-CX (Permit Conditions, Comment # 5)	5.2-1.	<p>Schedule of compliance for submittal of permit application material not acceptable. Schedules of compliance for submittal of permit application materials (i.e., a closure plan, contingent closure plan), or text in a closure plan stating information on components that will be submitted at a later date is unacceptable. Complete closure plans are required to be provided for Permit reissuance.</p> <p>(Applicable to all closure plans except the SST System, where Tier 1, 2, 3 closure plan submittals have been and will be negotiated through Tri-Party Agreement milestones.)</p>
LLBG Trench 31& 34 (Add. H, Comment # 1) DST & 204-AR WUS (Add. H, Comment #s 1, 8, 11, 33, 50) T-Plant (Permit Conditions, Comment #s 4, 7) Hexone (Add. H, Comment #s 2, 3, 43, 46, 48)	5.2-3. 5.2-4. 5.2-5. 5.2-6.	<p>Closure requirements and activities established at the DWMU level. Closure plans must be clearly structured around closure of individual DWMUs. Except for the last DWMU to be closed at Hanford, all individual DWMU closures are “partial closures.” Ensure closure plans do not use the term “partial closure,” in the context of closing an individual DWMU (i.e., to partially close a DWMU).</p> <p>(Applicable to all closure plans.)</p>

Ref. No.	Checklist Question #	EPA Conceptual Agreements
222-S (Closure Plan, Comment in Sections H.0, H.3.3.3.2, H.5)		
LLBG Trench 31& 34 (Add. H #s 2, 3, 6, 11,12; Permit Conditions, Comment #s 14, 15) DST & 204-AR WUS (Add. H, Comment #s 22, 24, 33, 40, 50) 216-S-10 (Permit Conditions, Comment #s 2, 5, 6) Hexone (Add. H, Comment #s 3, 15, 16, 17, 46) 241-CX (Permit Conditions, Comment # 8) T-Plant (Permit Conditions, Comment #s 3, 23)	5.2-10. through 5.2-10.c. 5.2-11. through 5.2-11.b.	<p>Closure performance standards, requirements, and activities established at the DWMU level. The closure plan must specify closure performance standards, as well as all closure requirements and activities that support achievement of the closure performance standards on an individual DWMU basis. Closure requirements for each DWMU must be established in the closure plan, and individual DWMUs closed in accordance with the approved closure plan. For example, the closure standards for an operating unit group must reflect the different closure performance standards between DWMUs (e.g., landfill and container storage units) in the operating unit group.</p> <p>(Applicable to all closure plans.)</p>
Hexone (Add. H, Comment # 3)	Required throughout checklist questions.	<p>Closure plan requirements must be established in the Permit vs. citing regulations. Text in closure plans should not state, units will be closed in accordance with regulatory requirements in lieu of closing in accordance with permit requirements. The closure requirements must be established in the closure plan, and the information must demonstrate regulatory requirements are met. DWMUs must close in accordance with the approved closure plan.</p> <p>(Applicable to all closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment # 43) 222-S (Closure Plan, Comment in Sections H.3.2.1, H.3.2.2)	5.2-12.	<p>Removal of waste inventory is part of closure. Removal of waste inventory is part of closure, and must be addressed in the closure plan. A detailed description of waste removal methods must be included in the closure plan.</p> <p>(Applicable to all closure plans.)</p>

Ref. No.	Checklist Question #	EPA Conceptual Agreements
DST & 204-AR WUS (Add. H, Comment #s 15, 33)	5.2-12. 5.2-15.	<p>Waste removal activities must be specified. Dangerous waste or constituent removal activities are required to be specified in the closure plan, according to WAC 173-303-610(3)(a)(iv). It is not acceptable to state, removal activities will be conducted in accordance with WAC 173-303-610. Language will be modified to read, "Clean closure will require decontamination or removal and disposal of dangerous waste, waste residues, contaminated equipment, soil, or other material established in accordance with the approved closure plan. Closure performance standards for structures, equipment, bases, liners, etc. will be established by Ecology." The closure plan must contain requirements for removal of any waste remaining in the tank system as of the date at which closure begins.</p> <p>(Applicable to all closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment # 30)	5.2-12. 5.2-15.	<p>Waste removal technologies must be specified. Stating, "the best available technology" will be used for waste removal is not appropriate. The actual technologies to be used for removal of "all waste" must be specified in the closure plan.</p> <p>(Applicable to all closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment # 32) 222-S (Closure Plan, Comment in Section H.2.2)	5.2-12.	<p>Actions to be taken in the event flushing and draining does not remove waste must be specified. The closure plan must also include actions that that will be taken in the event ancillary equipment cannot be flushed or drained (e.g., remove, designate and dispose of accordingly).</p> <p>(Applicable to closure plans with tank systems, potentially applicable to multiple closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment #s 27, 55, 58)	5.2-11.b. 5.2-12. 5.2-13. 5.2-14.	<p>Second option to achieve clean closure needed where it can be reasonably anticipated the first option may not work. For equipment such as pumps, filters, and pipes where it may not be technically practicable to evaluate compliance with the clean debris surface closure performance standard, the closure plan must describe in sufficient detail how the clean debris performance standard can be met during closure, and a second option if it cannot be met.</p> <p>(Applicable to closure plans with tank systems, potentially applicable to multiple closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment # 55) 222-S (Closure Plan, Comment in Section H.2.1)	5.2-11.b. 5.2-13. 5.2-14.	<p>Visual inspection of interior surfaces of pipes not technically feasible. As a general rule, it is not technically feasible to visually inspect the interior surfaces of pipes to meet the "clean debris surface" closure performance standard. This is particularly true of the relatively small-diameter pipes associated with double-shell tank (DST) systems. The closure plan needs to be revised to explain feasibility of visual inspection, or provide an alternative decontamination method.</p>

Ref. No.	Checklist Question #	EPA Conceptual Agreements
		(Potentially applicable to multiple closure plans with DWMUs that have piping as part of the system.)
DST & 204-AR WUS (Add. H, Comment #s 53, 54, 56) 222-S (Closure Plan, Comment in Section H.2.1)	5.2-14	Analysis of decontamination fluid effectiveness must be included. Closure plans need to include an analysis of the particular surfactants to be used, that they are appropriate for the specific wastes and waste constituents which can be expected to be present, and that the 15-minute residence time meets the cited technology description. This analysis also needs to consider each of the remaining factors in the technology description in addition to use of surfactants and residence time. Given the experience in waste retrieval from single-shell tanks, it is clear that selection of waste retrieval and decontamination solutions is not a trivial or easy task. (Applicable to closure plans where decontamination is being proposed.)
DST & 204-AR WUS (Add. H, Comment # 28)	5.2-10. 5.2-11.b. 5.2-14. 5.2-16.	Rinsate sampling not a defensible approach to document compliance with performance standards. Unless there is a documented quantitative relationship between the wastes, the decontamination fluid, and the quantity of decontamination fluid (a relationship that would likely be difficult to establish in “real world” circumstances), rinsate sampling is not a defensible approach to document compliance with performance standards. The closure performance standard for metal surfaces, such as the interior surface of a DST primary containment structure, is a clean debris surface. (Applicable to closure plans proposing decontamination methods to achieve clean closure.)
Hexone (Add. H, Comment # 26)	5.2-12. 5.2-16.	Waste inventory removal not a newly generated waste. Waste remaining in a DWMU that is removed, is not a newly generated waste (i.e., there is no new point of generation) and cannot be accumulated in accordance with WAC 173-303-200. (Applicable to all closure plans.)
Hexone (Add. H, Comment #s 19, 21, 24)	5.2-12. 5.2-15. 5.2-17.	Characterization of waste to meet Land Disposal Restrictions (LDR). Characterization for purposes of demonstrating compliance with applicable LDR treatment standards for waste inventory removed, or waste generated during closure must be addressed in the closure plan. (Applicable to all closure plans.)
CWC (Add. H, Comment #s 1, 3, 5, 15)	5.2-11. 5.2-14. 5.2-15.	Closure requirements must differentiate between structures and equipment vs. soils/porous surfaces. The closure plan will be restructured to differentiate between the closure requirements for buildings, structures and equipment from soil and porous surfaces. The revision will include requirements to

Ref. No.	Checklist Question #	EPA Conceptual Agreements
		<p>identify the contaminants of concern and provide a sampling and analysis plan where closure performance standards are established as a concentration-based standard.</p> <p>(Applicable to all closure plans.)</p>
222-S (Closure Plan, Comment in Sections H.1, H.3, H.3.3.5)	None	<p>Container storage areas must be clean closed. There is no regulatory provision authorizing closure through other than removal or decontamination for container storage units.</p> <p>(Applicable to closure plans with container storage areas.)</p>
<p>CWC (Add. H, Comment # 3)</p> <p>222-S (Closure Plan, Comment in Sections H.1, H.3.3.3)</p>	5.2-11.b. 5.2-13. 5.2-14.	<p>Clean debris surface performance standard not appropriate for porous surfaces. The performance standard of “clean debris surface” is not appropriate for porous surfaces such as asphalt or un-coated concrete.</p> <p>(Applicable to closure plans where “clean debris surface” is proposed to achieve clean closure.)</p>
DST & 204-AR WUS (Add. H, Comment #s 8, 9)	5.2-11.b. 5.2-14.	<p>Improper use of the term “debris,” intact tanks do not meet the definition of “debris.” The closure plan cannot contain the assumption that all contaminated equipment, tanks, and piping removed from the DST System will be considered “debris” as defined in WAC 173-303-040. Text will be revised to read “Contaminated equipment, tanks, and piping removed from the DST System pursuant to this closure plan meeting the definition of “hazardous debris” will be treated and disposed of as such.” Also note that intact tanks do not meet the definition of debris.</p> <p>(Potentially applicable to all closure plans.)</p>
<p>LLBG Trench 31& 34 (Add. H, Comment # 9)</p> <p>Hexone (Add. H, Comment # 32)</p>	5.2-11.b. 5.2-14.	<p>Treatment and management of hazardous debris must be specified. Restating regulatory requirements or treatment options for hazardous debris in the closure plan is not adequate. The closure plan must provide detailed text for managing hazardous debris in accordance with the dangerous waste regulations.</p> <p>(Applicable to closure plans where LDR treatment of hazardous debris is expected.)</p>
DST & 204-AR WUS (Add. H, Comment # 16)	5.2-12. 5.2-15.	<p>Description of methods for removing, treating, storing, or disposing of waste must be specified. Specifying that waste will be removed, treated and disposed of in accordance with LDR requirements is too generic in the context of the DST waste. The text will be replaced with “All remaining tank waste will be removed and treated in the Waste Treatment and Immobilization Plant complex, as the only practicable means of treatment to meet the required treatment method of HLWIT, with final disposal to be determined.” Where waste associated with closure have limited or unique treatment and disposal requirements, the “detailed description of the methods to be</p>

Ref. No.	Checklist Question #	EPA Conceptual Agreements
		<p>used during closures...for treating, storing or disposing of dangerous waste” in the closure plan should reflect the particular waste management unit or process that will be used (e.g., transuranic waste will be disposed of at the Waste Isolation Pilot Plant).</p> <p>(Applicable to all closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment # 29)	5.2-12. 5.2-15. 5.2-16.	<p>Management of waste generated during closure must be specified. The management of waste (i.e., treatment, storage, and disposal) generated during closure (e.g., decontamination fluids) must be clearly described in the closure plan.</p>
DST & 204-AR WUS (Add. H, Comment #s 30, 31, 44, 45, 56) 222-S (Closure Plan, Comment in Sections H.3.2.1, H.3.3.1) CWC (Add. H, Comment # 4)	5.2-14.	<p>Decontamination methods and standards must be specified. Stating that decontamination will be in accordance with WAC 173-303-640(8)(a) is inappropriate, as the citation does not specify decontamination standards, methodology or requirements. Any decontamination standards and requirements must specified in the approved closure plan.</p> <p>When using flushing for decontamination of ancillary equipment, both the flushing fluid and means of conducting flushing (i.e., temperature, flow rate, time, volume of flushing fluid, etc.) all must be specified in the closure plan, either explicitly or on a performance basis. Otherwise there is no basis to evaluate whether or not the proposed approach to closure will be effective or is in compliance with dangerous waste regulations.</p> <p>(Applicable to closure plans where decontamination methods are proposed to achieve clean closure.)</p>
DST & 204-AR WUS (Add. H, Comment # 41) Hexone (Add. H, Comment # 38)	5.2-14. 5.2-16.	<p>Equipment decontamination and reuse methods must be specified. Closure plans need to differentiate between equipment and materials used during closure that will be discarded and managed under generator and generator accumulation standards of WAC 173-303-170 and -200 respectively, and those which will be decontaminated and re-used. How equipment used during closure activities will be decontaminated, reused, or disposed of as waste must all be specified in the closure plan.</p> <p>(Applicable to closure plans where decontamination methods are proposed to achieve clean closure.)</p>
LLBG Trench 31& 34 (Add. H, Comment # 10)	5.2-15.	<p>Requirements for cleaning up contaminated soil must be specified. Closure plans must include requirements for any remaining contaminated soils not cleaned up during facility operations and soils contaminated or discovered during closure activities.</p> <p>(Potentially applicable to multiple closure plans.)</p>

Ref. No.	Checklist Question #	EPA Conceptual Agreements
LLBG Trench 31& 34 (Add. H, Comment # 9)	5.2-15.	<p>Improper application of the ‘contained-in’ determination rule. The text “In effect, by making this ‘contained-in’ determination on a case-by-case basis, Ecology will be setting clean closure standards in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii).” must be deleted. Making a “contained-in determination” does not set a clean closure (i.e., closure by removal or decontamination) standard.</p> <p>Note: For purposes of establishing treatment, storage or disposal requirements, contaminated environmental media generated pursuant to closure activities may be subject to a contained-in determination. Similarly, Ecology may make a debris contained-in determination, according to WAC 173-303-071(3)(qq).</p> <p>(Applicable to closure plans that discuss “contained-in” determinations.)</p>
LLBG Trench 31& 34 (Add. H, Comment # 10A)	5.2-15.	<p>Improper application of the “contained-in” determination rule. An affirmative statement that a contained-in determination will be sought for contaminated soil is not appropriate. This text should state that a contained-in determination may be sought if there is a reasonable basis that criteria for a contained-in determination can be met. (Trench 31/34 specific, potentially applicable to multiple closure plans)</p> <p>Closure plan activities for the two container storage units should include a detailed review of any spills and whatever cleanup took place (or did not) at the time of the spill.</p> <p>(Trench 31/34 specific, potentially applicable to multiple closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment # 8)	5.2-12. 5.2-15.	<p>Clean closure by removal methodology must be specified. If tank structure removal is truly being considered as part of DST System closure, the closure plan must address how the structures will be removed.</p> <p>(DST specific, applicable to closure plans where clean closure by removal is being considered.)</p>
DST & 204-AR WUS (Add. H, Comment #s 4, 75) 222-S (Closure Plan, Comment in Section H.2.3)	5.2-6. 5.2-17.	<p>Operating record must document releases and cleanup. Documentation on known releases must be sufficient to establish all closure requirements. The information provides only the beginning of where these releases are located. Additional information is required, including but not limited to investigations to define the nature and extent of contamination that must be addressed through the closure process, including any necessary sampling and analysis requirements and associated Quality Assurance/Quality Control (QA/QC). This</p>

Ref. No.	Checklist Question #	EPA Conceptual Agreements
		information must be included in a revised closure plan submitted to Ecology. (Applicable to all closure plans.)
CWC (Add. H, Comment # 10) 222-S (Closure Plan, Comment in Section H.2.1)	5.2-6. 5.2-17.	Operating record must document releases and cleanup; sampling and analysis must be used to verify clean closure of soils beneath porous surfaces. The facility operating record needs to be robust enough to accurately document releases. The text will be revised to require sampling and analysis to verify the accuracy of the facility operating record and verify underlying soils are clean because asphalt is a porous surface. Facility recordkeeping requirements should be sufficiently robust to support closure decisions. (Applicable to all closure plans.)
LLBG Trench 31& 34 (Add. H, Comment # 10)	5.2-6.	Closure activities must include review of spills and subsequent cleanup. Closure plan activities for the two container storage units should include a detailed review of any spills and whatever cleanup took place (or did not) at the time of the spill. (Applicable to all closure plans.)
216-S-10 (Permit Conditions, Comment #s 7, 8, 10) 241-CX (Permit Conditions, Comment #s 10, 11) 222-S (Closure Plan, Comment in Section H.3.3.5)	5.2-17.	Sampling and analysis plan is a requirement of the closure plan. A sampling and analysis plan is a requirement of the closure plan (WAC 173-303-610(3)(a)(v)). Approval of the closure plan and sampling and analysis plan (if separate) must be concurrently approved to satisfy closure plan content requirements in -610(3)(a)(v). (Applicable to all closure plans.)
DST & 204-AR WUS (Add. H, Comment #s 35, 36, 37, 38, 60, 61) 222-S (Closure Plan, Comment in Section H.2.3)	5.2-17.	Sampling and analysis to verify clean closure of soils underlying buildings and structures. Soils underlying buildings and structures (e.g., tanks, vaults, and container storage areas) are subject to direct sampling and analysis to verify compliance with clean closure performance standards if the building/structure surface is permeable (e.g., uncoated concrete, asphalt surface, through thickness cracks or pitting, non-compliant tank system). A Sampling and Analysis Plan (SAP) is required to support verification sampling that includes appropriate sampling and analysis requirements, including QA/QC procedures and criteria, or a justification of why verification sampling is not practicable in accordance with WAC 173-303-640(8). (Applicable to all closure plans.)

Ref. No.	Checklist Question #	EPA Conceptual Agreements
Hexone (Add. H, Comment #s 18, 28, 29, 35, 47)	5.2-6. 5.2-13. 5.2-17.	Sampling and analysis is required to verify clean closure of soils; visual inspection not acceptable <u>except</u> when using “clean debris surface” performance standard. Visual inspections are not considered an acceptable means of demonstrating compliance with concentration-based removal/decontamination standards for soils. Verification must be according to sampling and analysis requirements in the plan. The only exception to this is if the “clean closure” performance standard is a clean debris surface, which of course, would not apply to soils. Of course, visual evidence of a release can be an appropriate criterion for selection of biased sampling locations.
Hexone (Add. H, Comment # 50)	5.2-17.	Purpose of QA/QC Project Plan. The principle purpose of a QA/QC project plan is to ensure that data are of appropriate quality and quantity for their intended decision-making purpose. Ensure text in closure plans/SAPs reflects this language. (Applicable to all closure plans.)
LLBG Trench 31& 34 (Add. H, Comment #s 2, 5, 12; Permit Conditions, Comment #s 14, 15) 216-S-10 (Permit Conditions, Comment # 2) NRDWL (1/21/2010 Letter from R. Albright to R. Skinnarland)	5.4-4. 5.4-5. 5.5-2. 5.5-3.	Final cover design must be included. Final cover designs must be complete and included in the closure plan as of the effective date of the Permit. A complete and compliant closure plan must be based on a complete engineering design, including supporting analysis and calculations, material specifications, and construction QA/QC along with a complete schedule with sufficient level of detail given the level of complexity of the closure actions. (Applicable to closure plans with land disposal DWMUs and contingent landfill closure plans.)
Hexone (Add. H, Comment # 41)	Required throughout checklist questions.	Design information required to complete closure must be included. Design documents required to complete closure must be prepared and submitted as part of the closure plan. (Applicable to all closure plans.)
DST & 204-AR WUS (Add. H, Comment # 2) 222-S (Closure Plan, Comment in Section H.0)	5.2-19.d.	Date permittee expects to begin closure. Text in closure plans that discuss the date the Permittee “expects to begin closure” for a particular dangerous waste management unit needs to explicitly reflect the WAC 173-303-610(3)(c)(ii) requirement “no later than thirty days after the date on which any dangerous waste management unit receives the known final volume of dangerous waste...”. Text will be revised to state “Closure of a dangerous waste management unit in the DST System will begin no later than 30 days after the date on which that dangerous waste management unit receives the known final

Ref. No.	Checklist Question #	EPA Conceptual Agreements
		<p>volume of dangerous waste in accordance with WAC 173-303-610(3)(c)(ii) or at such time period Ecology approves, - 610(3)(c)(ii)(A) and (B).”</p> <p>(Applicable to all closure plans.)</p>
<p>DST & 204-AR WUS (Add. H, Comment #s 72, 73; Permit Conditions, Comment #s 2, 33)</p>	5.2-19.e.	<p>Demonstration for delay in initiating closure. Components that are no longer receiving waste must close in accordance with the approved closure plan, unless the permittee provides a demonstration in the closure plan, in accordance with WAC 173-303-610(3)(c)(ii)(A). The term “deferred use” is a non-regulatory term that the permittee is using to substitute for delaying closure of components through the cited regulatory process. This language must be deleted and replaced with the appropriate regulatory language in WAC 173-303-610(3)(c)(ii)(A).</p> <p>(Applicable to all closure plans.)</p>
<p>LLBG Trench 31& 34 (Add. H, Comment # 14)</p> <p>216-S-10 (Permit Conditions, Comment # 4)</p> <p>DST & 204-AR WUS (Add. H, Comment #s 65, 71; Permit Conditions, Comment # 28)</p> <p>222-S (Closure Plan, Comment in Section H.5)</p> <p>T-Plant (Permit Conditions, Comment #s 3, 23)</p>	5.2-19. through 5.2-19.b.	<p>Closure schedule. Closure plans must include closure schedules as they are a required element of closure plans, according to WAC 173-303-610(3). Closure schedules must appropriately reflect the complexity of closure actions. Closure schedules for container storage areas may be fairly simple and straightforward. Closure schedules for landfills are complex, and should be approached on a project management basis consistent with the detailed engineering design for final cover installation.</p> <p>(Applicable to all closure plans.)</p>
<p>LLBG Trench 31& 34 (Add. H, Comment # 15)</p> <p>DST & 204-AR WUS (Add. H, Comment # 65)</p> <p>Hexone (Add. H, Comment # 42)</p>	5.2-19.c.	<p>Extensions to the closure period. Extensions to the time allowed for closure must be proposed on an individual DWMU basis in the closure plan, and have a documented basis that Ecology has reviewed with respect to the criteria for such extensions under WAC 173-303-610(4)(a) and (b). Approval of extensions with an adequate basis is through the permitting process.</p>

Ref. No.	Checklist Question #	EPA Conceptual Agreements
222-S (Closure Plan, Comment in Section H.5) T-Plant (Permit Conditions, Comment #s 3, 23)		(Applicable to closure plans where longer than 90 days is needed to remove waste inventory, or longer than 180 days is needed to complete closure of a DWMU.)
DST & 204-AR WUS (Add. H, Comment # 30)	None	Use of unenforceable language. Unenforceable language such as “it is anticipated” is inappropriate to use in an approved closure plan. Closure must be according to the specific requirements in the closure plan. If requirements in the closure plan cannot be satisfied, it would be an unexpected event during closure that warrants a permit modification.
CWC (Add. H, Comment #s 7, 8, 16)	5.2-28.a. 5.2-28.b.	Revise text in closure plans to use the terminology “unexpected events during closure” vs. “in this circumstance” where appropriate. For example, text requiring a data quality objective in the event that contaminated soils are discovered should read “Should contaminated soils be discovered as an unexpected event during closure, a data quality objectives analysis will be performed to support a permit modification request to modify the closure plan to establish soil closure performance standards for these units, and the associated sampling and analysis requirements.” (Applicable to all closure plans.)
LLBG Trench 31& 34 (Add. H, Comment #s 4, 8), DST & 204-AR WUS (Add. H, Comment #s 66, 72; Permit Conditions, Comment # 2) Hexone (Add. H, Comment # 20)	None	Use of non-regulatory terms in the Permit. Avoid using and defining non-regulatory terms in the Permit (e.g., auxiliary equipment, deferred use, deferred status, deferred use status, interim closure, pre-closure, clean conditions). (Applicable to all closure plans.)
DST & 204-AR WUS (Add. H, Comment #s 1, 3)	None	Use of the term “interim closure.” The closure plan must include all of the necessary requirements and performance standards to address all elements of the DST systems in the closure plan itself, without the need to define the term “interim closure.” Where necessary or appropriate to protect human health and the environment, the permit can contain enforceable requirements and schedules to close DST system components that are unfit for use/no longer required according to the approved closure plan in advance of the start of closure, based on the authority of WAC 173-303-610(3)(c)(iv)

Ref. No.	Checklist Question #	EPA Conceptual Agreements
		and/or WAC 173-303-815(2)(b)(ii) (omnibus). The term “interim closure” must be deleted from Addendum H and replaced with “closure” as defined in WAC 173-303-040. (DST specific, potentially applicable to multiple closure plans where the term “interim closure” is used.)
LLBG Trench 31& 34 (Add. H, Comment # 4)	None	Use of the term “pre-closure.” The term “pre-closure activities” has no basis in the dangerous waste regulations and must be deleted. Further it appears this term is being used as a means to delay placement of final covers in a manner inconsistent with the requirements of WAC 173-303-610(4)(a). Placement of the final cover must be based on the date of last receipt of waste for each landfill cell, and the associated start of closure as defined in WAC 173-303-610(4), according to the plans and schedules in the approved closure plan. (Applicable to closure plans where the term “pre-closure” is used.)
LLBG Trench 31& 34 (Add. H, Comment # 7)	5.2-8. 5.2-9.	Complete closure plan – maximum inventory. The maximum inventory for individual DWMUs must be included in the closure plan, either directly or incorporated by reference. The maximum inventory must be consistent with the design capacity information in the rest of the Permit (i.e., Addenda A and C). The maximum inventory should not be greater than (but could be less than) the design capacity. (Applicable to all closure plans.)
216-S-10 (Permit Conditions, Comment # 2) EPA Visit Discussion – 1301_N (8/26/2013) EPA Visit Discussion 1325-N (8/26/2013)	5.2-10.a. 5.2-10.c. 5.2-20.	Alternative closure requirements. If alternative closure requirements in accordance with WAC 173-303-610(1)(e) are proposed for an eligible DWMU, they must be included in the closure plan, either directly or by reference. (Applicable to closure plans where alternative requirements are proposed.)
216-S-10 (Permit Conditions, Comment # 12)	5.2-10.a. 5.2-10.c. 5.2-20.	Alternative closure requirements, demonstration. When exercise of either -610(1)(e) or -645(1)(f) alternative requirements is anticipated, the Permittee or permit applicant must provide Ecology with the following information: 1) A demonstration of how the criteria of -610(1)(e)(i) and (ii), and -645(1)(f)(i) and (ii) are satisfied; 2) The specific requirements of -610 and -645 to be replaced; and 3) The specific alternative requirements that are proposed.

Ref. No.	Checklist Question #	EPA Conceptual Agreements
		(Applicable to closure plans where alternative requirements are proposed.)
LLBG Trench 31& 34 (Add. H, Comment # 2) 216-S-10 (Permit Conditions, Comment # 2) Hexone (Add. H, Comment #s 6, 27, 37, 48) 241-CX (Permit Conditions, Comment # 1) LLBG Green Islands (Permit Conditions, Comment #s 5, 6, 7)	5.2-1. 5.2-10.a. 5.2-10.c. 5.2-20.	Integration with the HFFACO. To the extent that integration with the HFFACO is appropriate, the integrated requirements must be established in the closure plan through the permitting process. (Applicable to closure plans where integration with the HFFACO is proposed.)
DST & 204-AR WUS (Add. H, Comment # 14)	5.2-29.	Information on minimizing or eliminating worker exposure to dangerous waste and any other workplace hazards must be specified. Additional specific information is required to explain how, when, and where monitoring or practices will be conducted to ensure the closure work is performed to minimize or eliminate worker exposure to dangerous waste and any other workplace hazards. (Applicable to all closure plans.)
DST & 204-AR WUS (Add. H, Comment #s 5, 21) 222-S (Closure Plan, Comment in Section H.3)	5.3-2.	Practicability demonstration and subsequent amendment of the closure plan. In the event the permittee believes a tank system cannot achieve clean closure, a “practicability” demonstration as required WAC 173-303-640(8)(b) must be submitted to Ecology. Additionally, the amended closure plan must be submitted to Ecology as a permit modification request. Text will be revised to address the “practicability” demonstration and permit modification request. (Applicable to any tank system where the permittee believes clean closure cannot be achieved.)
DST & 204-AR WUS (Add. H, Comment # 39)	None; covered by Permit Condition II.J.3.	Closure plan modification during the operating life of DWMU. Closure plans are required to be kept current throughout the operating life of a DWMU, not just at the time of closure. Modifications to closure plans will be made through the permit modification process outlined in the Permit.

Ref. No.	Checklist Question #	EPA Conceptual Agreements
222-S (Closure Plan, Comment in Section H.3)		(Applicable to closure plans with operating DWMUs.)
CWC (Add. H, Comment # 9)	5.2-28.; also covered by Permit Condition II.J.3.	<p>Closure plan modification in the event of a release. Closure plans must be amended in the event of releases, and must contain the following language:</p> <p>Previous spills and subsequent cleanup will be identified and documented in the [unit group name] portion of the facility operating record and addressed at the time of closure. A permit modification is required within 60 days (173-303-610(3)(b)(iii)) when a release occurs that requires modification of the closure plan.</p> <p>(Applicable to all closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment # 48)	None	<p>Approval of alternative treatment methods pursuant to 40 CFR 268.42(b) not part of Ecology's authorized state program. Approval of alternative treatment methods pursuant to 40 CFR 268.42(b) is not part of Ecology's authorized state program. Closure plan text stating Ecology approval of alternative treatment methods pursuant to 40 CFR 268.42(b) must be changed to "EPA approval".</p> <p>(Potentially applicable to multiple closure plans.)</p>
DST & 204-AR WUS (Add. H, Comment # 52)	5.2-21.	<p>Submittal of closure certifications must occur only after closure has been completed. Submittal of certifications of closure to Ecology must occur only after closure has been completed in accordance with the approved closure plan. Ensure closure plan text is consistent with this requirement.</p> <p>(Applicable to all closure plans.)</p>
Hexone (Add. H, Comment #s 4, 5, 14, 15, 35, 36, 45, 46) 241-CX (Permit Conditions, Comment # 5)	5.3-1.	<p>Contingent closure/post-closure plan required for non-compliant tank systems. Non-compliant tank systems are required to have a clean closure plan, and also a contingent landfill closure/post-closure plan in the Permit, in the event the permittee demonstrates it is not practicable to clean close by removal or decontamination.</p> <p>(Applicable to closure plans with non-compliant tank systems.)</p>
Hexone (Add. H, Comment # 31)	5.2-10.	<p>Requirements for site restoration must be specified. The specific requirements for restoration must be documented in the closure plan, otherwise it will be difficult or impossible to enforce closure plan requirements.</p> <p>(Applicable to all closure plans.)</p>
LLBG Trench 31& 34 (Permit	5.4-1. 5.4-2.	<p>Operating requirements during closure must be specified. Operating requirements during closure must be specified in the closure plan. The following citation addresses the operating</p>

Ref. No.	Checklist Question #	EPA Conceptual Agreements
Conditions, Comment # 20)	5.5-4. through 5.5-9.	requirements for the active life (includes the closure period) and post-closure: WAC citation 173-303-665(2)(h). (Specific to landfills, however applicable to all closure plans where operating requirements during closure are necessary.)
Hexone (Add. H, Comment # 40)	5.2-25.	Training requirements during closure must be specified. Training requirements during closure must be specified in the closure plan directly or by reference in the closure plan to Addendum G, Training. (Applicable to all closure plans.)
241-CX (Permit Conditions, Comment # 14) Hexone (Permit Conditions, Comment # 11)	5.2-27.	Security requirements during closure must be specified. Security information is required for active portions of the facility, which includes DWMUs that are no longer operating, but remain un-closed. Security information must be specified in the closure plan directly or by reference in the closure plan to Addendum E, Security. (Applicable to all closure plans)
241-CX (Permit Conditions, Comment # 15) Hexone (Permit Conditions, Comment # 12) LLBG Green Islands (Permit Conditions, Comment # 9)	5.2-26. 5.4-1. 5.4-2. 5.5-4. through 5.5-9.	Inspection requirements during closure must be specified. Inspections to be conducted during the closure period must be specified in the closure plan directly or by reference in the closure plan to Addendum I; Inspection Plan. (Applicable to all closure plans.)

6. UNIT GROUP REQUIREMENTS CHECKLIST FOR CLOSURE

The permit writer will use the following checklists to complete the Section 6, Regulatory Matrix Map and Deficiencies/Solutions table. Refer to the applicable state and federal guidance documents listed in Section 4.4 as needed. Any discrepancies must be noted in Section 6, Regulatory Matrix Map, Deficiency column. When a conceptual agreement is associated with a checklist question, the permit writer must review the conceptual agreement in Section 4.5, Closure Requirements Conceptual Agreements table. If the closure plan is deficient for that checklist question, the conceptual agreement must be included as part of the proposed solution in the Section 6. Regulatory Matrix Map, Proposed Solutions column.

6.1 Unit Group Permit Conditions

1. Review the table of contents in the front of the unit group Permit chapter. Is Addendum H titled "Closure Plan?"
2. Locate the closure section of the unit group Permit conditions. Is the first condition titled "Closure?"
3. Is the closure addendum throughout the unit group Permit chapter consistently titled and referenced as "Addendum H, Closure Plan?"
4. Does the unit group Permit chapter contain the standardized closure permit condition below? "The Permittees must close dangerous waste management units in the [Applicable Unit Group] that are subject to closure, in accordance with the Addendum H, Closure Plan."

6.2 General Closure Plan Requirements

1. Does the unit group Permit chapter have a closure plan? If no, indicate in the Comments Section if there is a unit group permit condition citing a HFFACO milestone that requires submittal of a closure plan for the unit group. Do not answer any other checklist questions. [WAC 173-303-610(1)(a), -806(4)(a)(xiii)]
2. Is the closure addendum titled, "Addendum H, Closure Plan?" If no, provide the addendum title in the Comments Section.
3. Does the closure plan include a general description of the portion of the Hanford Facility that makes up the unit group, including the types of DWMUs, what they were used for, and other general information? [WAC 173-303-610(3)(a), -806(4)(a)(xiii)] <u>Guidance Referral</u> See Section II.1, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements See Sections 1. – 1.6, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors See Sections 1. – 1.6, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance
4. Does the closure plan identify individual DWMUs?

Note: Individual DWMUs must be identified because closure occurs at the individual DWMU level. However, like DWMUs can be grouped together in the closure plan if the closure methods and steps for removal or decontamination are the same.

WAC 173-303-040, "Dangerous waste management unit" is a contiguous area of land on or in which dangerous waste is placed, or the largest area in which there is a significant likelihood of mixing dangerous waste constituents in the same area. Examples of dangerous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

[WAC 173-303-610(3)(a)(i), -806(4)(a)(xiii)]

5. Does the closure plan include a detailed map (with a scale of no more than 1 inch = 200 feet) or diagram of the unit group, with each DWMU and groundwater monitoring well(s) clearly located and identified, and include a legend and north arrow?

Note: This requirements may be satisfied by the topographic map in Addendum A, Part A.

[WAC 173-303-610(3)(a)(ii), -806(4)(a)(xiii)]

Guidance Referral

See Section II.1, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

See Sections 1. – 1.6, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Sections 1. – 1.6, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

6. Does the closure plan adequately describe each DWMU to be closed, including the following information:

- Waste types managed in each DWMU (by standard chemical name and waste code)?
- Period of use?
- Which DWMUs in the unit group are currently operating vs. closing?
- Dimensions, construction details (e.g., materials, as-built drawings, etc.), and other structures associated with the DWMU (e.g., secondary containment, piping shared with another DWMU)?
- Possible releases?
- Soil types (as appropriate)?
- Geologic and hydrogeologic information (as appropriate)?

[WAC 173-303-610(3)(a), -806(4)(a)(xiii)]

Guidance Referral

See Section II.1, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

See Sections 1. – 1.6, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Sections 1. – 1.6, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

7. Does the closure plan describe the maximum extent of operation which will be unclosed during the active life of the unit group portion of the Hanford Facility?

Note: The maximum extent of operation does not include DWMUs that have been already "clean closed."

[WAC 173-303-610(3)(a)(ii), -806(4)(a)(xiii)]

Guidance Referral

See Section 8.2.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.1.2, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

8. Does the closure plan include the overall maximum waste inventory for the unit group by process type (e.g., overall maximum waste inventory for container storage areas, tank storage and treatment, landfill disposal)? If yes, do the capacity numbers agree with the information on capacities in Addendum A, Part A (e.g., container storage capacity (S01))?

[WAC 173-303-610(3)(a)(iii), -806(4)(a)(xiii)]

Guidance Referral

See Section 8.2.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.1.1, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

See Section 1.6.1, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Section 1.6.1, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

9. For information from checklist questions 5.2-3 through 5.2-8 that is included in the closure plan, is it consistent with the information included in the remainder of the unit group Permit chapter (e.g., Part A, process information, waste analysis plan, inspection plan, etc.)?

[WAC 173-303-610(3)(a), -806(4)(a)(xiii)]

10. Does the closure plan state that each DWMU will be closed in accordance with the general closure performance standard in WAC 173-303-610(2)(a) as outlined below?

- In a manner that minimizes the need for further maintenance?
- In a manner that controls, minimizes or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere?
- In a manner that returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity?

10.a. Does the closure plan state the main objective for closure of each DWMU (i.e., closure by removal or decontamination "clean closure," landfill closure, or proposed alternative closure requirements (if eligible))?

10.b. For clean closure, does the closure plan describe how each DWMU will be closed in accordance with the closure performance standard, including all of the activities planned during the closure period such as waste removal, removal and/or decontamination of structures and equipment, and removal and/or decontamination of any contaminated soil or other contamination resulting from the DWMU?

10.c. For proposed alternative closure requirements in accordance with WAC 173-303-610(1)(e), does the closure plan describe how the proposed requirements will ensure the DWMU will be closed in accordance with the closure performance standard, including all of the activities planned during the closure period such as waste removal, and/or decontamination of structures and equipment, and removal and/or decontamination of any contaminated soil or other contamination resulting from the DWMU?

Note: For DWMUs that will close as a landfill, skip checklist questions 5.2-11 through 5.2-16, and complete checklist questions 5.2-17 through 5.2-29.

[WAC 173-303-610(1)(e), -610(2)(a), -610(3)(a)(i), -630(10), -640(8), -650(6), -680(2), 40 C.F.R. 264.1102 (incorporated by reference by WAC 173-303-695), -806(4)(a)(xiii), -806(4)(d)(vii), -806(4)(h)(v), -806(4)(i)(i)(B)]

Guidance Referral

See Sections 2.0 and 8.2.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.2, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

See Section 2.0, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Section 2.0, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

11. Does the closure plan identify the technical clean closure performance standards in WAC 173-303-610(2)(b) that will be met, including:

- 11.a. For soils, groundwater, surface water, and air, are the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act (MTCA) Cleanup Regulation, Chapter 173-340 WAC?

Note: Use the Guidance Referral below when answering this checklist question. Due to the complexity of the Hanford Facility and levels of contamination, in general, the numeric cleanup levels will be calculated using unrestricted site use exposure assumptions according to MTCA Method B.

- 11.b. For all structures, equipment, bases, liners, etc.?

Note: Use the Guidance Referral below when answering this checklist question. Ecology establishes clean closure decontamination standards on a case-by-case basis, in accordance with the general closure performance standards of WAC 173-303-610(2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of dangerous waste constituents. Decontamination approaches and standards will differ depending on the material in question. For debris, information on decontamination methods is provided in Ecology Publication #94-111, Section 5.0. For soil, information on decontamination methods is provided in Ecology Publication #94-111, Section 6.0.

[WAC 173-303-610(2)(b), -610(3)(a)(i), -630(10), -640(8)(a), -650(6)(a)(i), -680(2), 40 C.F.R. 264.1102 (incorporated by reference by WAC 173-303-695), -806(4)(a)(xiii), -806(4)(d)(vii), -806(4)(i)(i)(B)]

Guidance Referral

See Sections 2.2 – 2.7, 5.0, 6.0 and 8.2, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.2, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

See Sections 2. – 3., Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Sections 2. – 3., Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

12. Does the closure plan describe procedures for removal of wastes and waste residues, including:

- A detailed description of each step in removing wastes and waste residues?
- Estimated volumes and types of waste and waste residues that will be removed during closure?
- How wastes and waste residues will be managed (treated, stored, disposed) on-site during closure and, if applicable, transported off-site for treatment and/or disposal?

- Identification of any management or treatment requirements that will apply (including LDR treatment standards) and how those standards will be met?
- Identification of the type(s) of the on- and off-site facilities/DWMUs to be used, if applicable (e.g., PermaFix)?

Note: It is important to fully describe every activity that will be needed, including, but not limited to, staging and containerization of waste or reagents, equipment to be used, removal pattern and depth increments, and management of staging, accumulation, storage, and loading areas. Closure plans should describe how you will minimize and/or prevent emissions of dangerous waste and dangerous constituents during closure activities. For example, if waste management activities during closure will include loading and transport of contaminated materials in trucks, the closure plan should describe the steps that will be taken to minimize air emissions from windblown dust and truck rinsing.

[WAC 173-303-610(3)(a)(iv)-(v), -630(10), -640(8)(a), -650(6)(a)(i), -680(2), 40 C.F.R. 264.1102 (incorporated by reference by WAC 173-303-695), -806(4)(a)(xiii), -806(4)(d)(vii) -806(4)(i)(i)(B)]

Guidance Referral

See Sections 3.0 – 3.2 and 8.2.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.3.1, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

See Sections 3.0 – 3.2, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Sections 3.1 and 3.2, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

13. Does the closure plan describe procedures for inspecting all DWMUs after waste/waste residues are removed, including:

- A detailed description of the steps needed to inspect DWMUs to identify cracks or other openings through which dangerous waste or decontamination fluids might migrate?
- Procedures for identifying and recording releases and potential releases?
- Procedures for reporting such releases and potential releases to Ecology?

Note: Records of the locations and dimensions of all cracks or other openings identified during closure may be kept in the unit group operating record, or the field notebook that is maintained during closure (see Ecology Publication #94-111, Section 7.10.1 for a description of the field notebook).

[WAC 173-303-610(3)(a)(v), -630(10), -640(8)(a), -650(6)(a)(i), -680(2), -695 (incorporating 40 CFR 264.1102(a)), -806(4)(a)(xiii), -806(4)(d)(vii), -806(4)(i)(i)(B)]

Guidance Referral

See Sections 4.0 and 8.2.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.3.2, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

See Section 3.3, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Section 3.3, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

14. Does the closure plan include a detailed description of the steps needed to decontaminate all dangerous waste residues and contaminated containment system components, equipment and structures, including but not limited to:

- Procedures for cleaning and decontaminating equipment?
- Detailed descriptions of implementation of planned decontamination methods?
- Detailed description of methods that will be used to collect and manage decontamination residuals (for example, rinse water)?
- Criteria for determining the extent of decontamination required to satisfy the closure performance standard?
- How decontaminated areas will be evaluated to determine if they meet the decontamination standard for clean closure?

Note: According to the empty container rule, a container is considered “empty” when all wastes have been removed that can be removed using practices commonly employed to remove materials from that type of container and there is either less than one inch or less than 1 percent of the container’s capacity by volume of waste remaining in the container, whichever is less (WAC 173-303-160).

Note: Facility owners have three options for decontaminating hazardous debris during closure: 1) Use the debris-specific, technology-based Alternative Treatment Standards for Hazardous Debris specified in 40 CFR 268.45 Table 1 (incorporated by reference at WAC 173-303-140(2)(a)); 2) Propose a site-specific decontamination method for decontamination and way to evaluate whether decontamination is successful; or 3) Meet Ecology-approved, site-specific numeric clean closure levels in the debris (that is, meet MTCA unrestricted site use cleanup levels).

[WAC 173-303-610(3)(a)(v), -630(10), -640(8)(a), -650(6)(a)(i), -680(2), 40 C.F.R. 264.1102 (incorporated by reference by WAC 173-303-695), -806(4)(a)(xiii), -806(4)(d)(vii), -806(4)(i)(i)(B)]

Guidance Referral

See Sections 2.6, 5.0 and 8.2.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.3.2 - II.3.3.2, Ecology Publication 95-402, Dangerous Waste Permit Application Requirements

See Sections 3.2 – 3.4, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Sections 3.2 – 3.5, and 3.7, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

15. Does the closure plan describe the steps, methods, and procedures used to decontaminate or remove soils/subsoils that contain dangerous waste, including:

- A detailed description of the steps needed to decontaminate all soils and subsoils during closure.
- Procedures for removing contaminated soils/subsoils and groundwater.
- Detailed descriptions of implementation of planned decontamination methods (e.g., in situ flushing, multi-phase extraction, in situ chemical reduction).
- Detailed description of methods that will be used to collect and manage decontamination residuals (e.g., in situ flushing solutions used in a pump and treat system, extracted vapors or contaminated liquids).
- Methods for sampling and testing surrounding soils/subsoils and, if applicable, groundwater, surface water, and sediments, and criteria for determining the extent of decontamination required to satisfy the closure performance standard?

Note: There are two options for managing contaminated soil that contains dangerous waste: 1) Contaminated soil can be managed as dangerous waste, treated to comply with applicable LDR treatment standards, and disposed of in an appropriate dangerous waste disposal facility; 2) Facility owners/operators, generators, and transporters can decontaminate soil and ask Ecology to make a contained-in determination for contaminated soil.

[WAC 173-303-610(3)(a)(v), -610(5), -630(10), -640(8)(a), -650(6)(a)(i), -680(2), 40 C.F.R. 264.1102 (incorporated by reference by WAC 173-303-695), -806(4)(a)(xiii), -806(4)(d)(vii), -806(4)(i)(i)(B)]

Guidance Referral

See Section 6.0, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.3.2 – II.3.3.2, Ecology Publication #95-402, Dangerous Waste Permit Application Requirements

See Sections 3.2 – 3.5, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Sections 3.2 – 3.5, and 3.7, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

16. Does the closure plan discuss how by removing any dangerous wastes or dangerous constituents during DWMU closure, the owner or operator may become a generator of dangerous waste, and describe how generated waste during closure will be handled according to applicable generator standard requirements (WAC 173-303-170 through 173-303-230)?

[WAC 173-303-610(5)]

Guidance Referral

See Sections 5.1 and 6.3.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.3.1 – II.3.2, Ecology Publication #95-402, Dangerous Waste Permit Application Requirements

See Section 3.1, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Section 3.1, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

EPA - Use of the Area of Contamination (AOC) Concept During RCRA Cleanups. March 13, 1996, MEMO (Discussion on when waste is generated.)

17. Does the closure plan include a Sampling and Analysis Plan (SAP)? If a SAP is included in the closure plan, coordinate its review with your assigned Ecology chemist.

Note: A Sampling and Analysis Plan (SAP) is a required component of the closure plan. Also, Section 6.5 from the HFFACO specifies the level of Quality Assurance and Quality Control (QA/QC) for the collection, preservation, transportation, and analysis of samples is dependent upon the Data Quality Objectives (DQOs) for the sample. It specifies that these DQOs be specified in RCRA closure plans, the RCRA permit, and any other relevant plans that may be used to describe sampling and analyses at RCRA TSD units. With this, every SAP needs a DQO. Section 6.5 from the HFFACO further states that SAPs contain Quality Assurance Project Plans (QAPPs).

[WAC 173-303-610(3)(a)(v), -806(4)(a)(xiii)]

Guidance Referral

See Section 7.0, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.3.2 – II.3.3.2, Ecology Publication #95-402, Dangerous Waste Permit Application Requirements

See Sections 3.5 – 3.7, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Sections 3.5 – 3.7, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

18. Does the closure plan describe in detail other activities necessary during the closure period to ensure that each DWMU closure satisfies the closure performance standards, including, but not limited to:

18.a. Groundwater monitoring (if applicable)? If groundwater monitoring information is included, complete the Groundwater Monitoring CAP to evaluate whether or not groundwater monitoring requirements have been met in your closure plan.

18.b. Leachate collection (if applicable)?

18.c. Run-on and runoff control (if applicable)?

[WAC 173-303-610(3)(a)(vi), -806(4)(a)(xiii)]

Guidance Referral

See Sections 5.3.2 and 8.2.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.3.4, Ecology Publication #95-402, Dangerous Waste Permit Application Requirements

See Section 2., Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Section 2., Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

19. Does the closure plan contain a schedule for closure of each DWMU, including:

19.a. The total time required for closing each DWMU?

Note: In general, the exact calendar date of the start and end dates of closure cannot be reasonably determined during the permitting process. On this basis, the schedule in the closure plan should be relative to the “Day zero” when closure begins. In other words, the closure plan should document the duration of the various closure activities in sufficient detail to track the progress and document the total duration of closure. Firm start and end calendar dates do not need to be specified in the closure plan. These dates are dependent on the last receipt of waste in the dangerous waste management unit and the notification requirements of WAC 173-303-610(3)(c).

19.b. The total time required for intervening closure activities which will allow tracking of the progress of DWMU closure?

Note: The schedule should address key activities such as waste removal, sampling, soil removal, critical points when the IQRPE will be present, backfilling, final cover construction, IQRPE certification of closure, and other relevant closure activities.

19.c. Will treatment, removal or disposal of dangerous waste inventory take longer than 90 days or completion of closure activities longer than 180 days? If yes, was a request for a longer schedule for closure, and a demonstration meeting the requirements of WAC 173-303-610(4) included?

19.d. In discussing the date the Permittee “expects to begin closure” for a particular dangerous waste management unit, does the closure plan explicitly reflect the WAC 173-303-610(3)(c)(ii) requirement “no later than thirty days after the date on which any dangerous waste management unit receives the known final volume of dangerous waste...”? For example, suitable text could state “Closure of a dangerous waste management unit in the [insert unit group name] will begin no later than thirty days after the date on which that dangerous waste management unit receives the known final volume of dangerous waste in

accordance with WAC 173-303-610(3)(c)(ii) or at such time period Ecology approves per 610(3)(c)(ii)(A) and (B).”

- 19.e. Components that are no longer receiving waste must close in accordance with the approved closure plan, unless the permittee provides a demonstration in the closure plan, in accordance with WAC 173-303-610(3)(c)(ii)(A). The term “deferred use” is a non-regulatory term that the permittee is using to substitute for delaying closure of components through the cited regulatory process. This language must be deleted and replaced with the appropriate regulatory language in WAC 173-303-610(3)(c)(ii)(A).

[WAC 173-303-610(3)(a)(vii), -610(3)(c)(ii), -610(4)(a)-(c), -806(4)(a)(xiii)]

Guidance Referral

See Section 8.2.1, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section II.4 – II.4.1, Ecology Publication #95-402, Dangerous Waste Permit Application Requirements

See Section 4.1, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Section 4.0, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

20. Does the closure plan include alternative requirements for a DWMU, either directly or by reference in accordance with WAC 173-303-610(1)(e)? If alternative requirements are included in the closure plan, evaluate the qualifying criteria below. Does the DWMU qualify for the use of alternative requirements?

WAC 173-303-610(1)(e): “Except for subsection (2)(a) of this section, the director may, in an enforceable document, replace all or part of the requirements of this section and the unit-specific requirements referenced in subsection (2)(b) of this section with alternative requirements when he or she determines: (i) A dangerous waste unit is situated among other solid waste management units or areas of concern, a release has occurred, and both the dangerous waste unit and one or more of the solid waste management units or areas of concern are likely to have contributed to the release; and (ii) It is not necessary to apply the requirements of this section (or the unit-specific requirements referenced in subsection (2)(b) of this section) because the alternative requirements will protect human health and the environment.”

- 20.a. If alternative requirements are included in the closure plan, does the unit group Permit fact sheet explain the basis for applying the alternative requirements, and why it is not necessary to apply the traditional requirements of WAC 173-303-610 or the unit-specific requirements referenced in -610(2)(b) because the alternate requirements are protective of human health and the environment? Note: The fact sheet/statement of basis should explain the basis [i.e., why it is not necessary to apply the requirements of WAC 173-303-610 or the unit-specific requirements of WAC 173-303-610(2)(b)] for approval of the alternative requirements. The fact sheet/statement of basis should also identify if the alternative requirements are included by reference in the closure plan vs. included directly in the closure plan. If the alternative requirements are included by reference in the closure plan, the fact sheet/statement of basis must identify where the alternative requirements can be found (i.e., the Ecology administrative record).

[WAC 173-303-610(1)(e), -610(3)(a)(ix), -806(4)(a)(xiii)]

21. Does the closure plan contain the language below for submittal of the certification of closure?

“Within sixty days of completion of closure of each dangerous waste management unit, the owner or operator will submit to Ecology, by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the dangerous waste management unit, has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by the owner or operator and by an independent qualified registered professional engineer.

Documentation supporting the independent qualified registered professional engineer's certification will be furnished to Ecology upon request."

[WAC 173-303-610(6)]

Guidance Referral

See Section 8.4, Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities

See Section 3.9, Ecology Publication #05-04-006, Closure Plan Template for Dangerous Waste Recyclers and Used Oil Processors

See Section 3.9, Ecology Publication #05-04-008, Checklist for Closure Plans, Closure Cost Estimates, and Financial Assurance

22. If the DWMU is a landfill, or is expected to close as a dangerous waste disposal unit (i.e., close with waste in place, subject to landfill requirements), does the closure plan contain the following statement for submittal of the survey plat?

"A survey plat will be submitted by the owner or operator to Ecology and to the Benton County Planning Department no later than the submission of the certification of closure of each dangerous waste disposal unit. The survey plat will indicate the location and dimensions of landfill cells or other dangerous waste disposal units with respect to permanently surveyed benchmarks. The plat will be prepared and certified by a professional land surveyor. The plat filed with the Benton County Planning Department will contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the dangerous waste disposal unit in accordance with WAC 173-303-610(7)(d)."

[WAC 173-303-610(9)]

23. If the DWMU is a landfill, or is expected to close as a dangerous waste disposal unit (i.e., close with waste in place, subject to landfill requirements), does the closure plan contain the following statement for submittal of disposal records?

"No later than sixty days after certification of closure of each dangerous waste disposal unit, a record of the type, location, and quantity of dangerous wastes disposed of within each cell or other disposal unit will be submitted by the owner or operator to Ecology and to the Benton County Planning Department. For wastes disposed of before November 19, 1980 (March 12, 1982, for facilities subject to this chapter but not subject to 40 C.F.R. Part 264), the owner or operator must identify the type, location, and quantity of the dangerous wastes to the best of his knowledge and in accordance with any records he has kept."

Note: Including the last sentence of this statement is dependent on waste disposal date.

[WAC 173-303-610(9), -610(10)(a)]

24. If the DWMU is a landfill, or is expected to close as a dangerous waste disposal unit (i.e., close with waste in place, subject to landfill requirements), does the closure plan contain the following statement for submitting a notice in deed to the property?

“A notice in deed to the facility property will be submitted by the owner or operator to the Auditor of the Benton County no later than 60 days after certification of closure of each dangerous waste management unit, in accordance with WAC 173-303-610(10)(b). After submitting this notice, a certification signed by the owner or operator will be submitted to Ecology stating that the notice has been recorded in accordance with WAC 173-303-610(10)(b)(i), along with a copy of the notice in deed.”

[WAC 173-303-610(10)(b), -610(10)(b)(i)-(ii)]

Guidance Referral

See Section I3., Ecology Publication #95-402, Dangerous Waste Permit Application Requirements

25. Are training requirements during the closure period either specified in the closure plan directly or incorporated by reference to Addendum G, Personnel Training?

[WAC 173-303-335]

26. Are inspection requirements during the closure period either specified in the closure plan directly or incorporated by reference to the Addendum I, Inspection Plan?

[WAC 173-303-320]

27. Are security requirements during the closure period either specified in the closure plan directly or incorporated by reference to Addendum E, Security?

Note: Security is required for the active portion of the facility unless a waiver to the security requirements is approved by Ecology. The definition of “active portion” includes any areas, which are no longer operating but remain unclosed). The request for a waiver must be submitted in accordance with WAC 173-303-806(4)(a)(iv), and include a justification demonstrating the reasons the security procedures and equipment required by WAC 173-303-310 are no longer required.

[WAC 173-303-310]

28. Does the closure plan contain the following language regarding amendment of the closure plan in the event of a release?

“Previous spills and subsequent cleanup will be identified and documented in the [unit group name] portion of the facility operating record and addressed at the time of closure. A permit modification is required within 60 days when a release occurs that requires modification of the closure plan.”

28.a. Does the closure plan contain the following language regarding amendment of the closure plan if there is an unexpected event prior to closure of a DWMU?

“If an unexpected event occurs prior to closure that affects the closure plan, a permit modification request to amend the closure plan will be submitted to Ecology within sixty days of the unexpected event.”

28.b. Does the closure plan contain the following language regarding amendment of the closure plan if there is an unexpected event during closure of a DWMU?

“If an unexpected event occurs during closure that affects the closure plan, a permit modification request to amend the closure plan will be submitted to Ecology within thirty days of the unexpected event.”

[173-303-610(3)(b)(iii)]

29. Does the closure plan specify how worker exposure to dangerous waste and any other workplace hazards from closure activities will be minimized or eliminated?

Note: Additional, specific information is required to explain how, when, and where monitoring or practices will be conducted to ensure the closure work is performed to minimize or eliminate worker exposure to dangerous waste and any other workplace hazards. For example, the closure plan must specify how dust will be controlled during contaminated soil or structure removal, including dust generated from any size reduction activities.

[WAC 173-303-610(3)(a)(iv)-(v)]

6.3 Tank System Closure Plan Requirements

1. Are any of the tank systems in the unit group Permit chapter without secondary containment, or with secondary containment that does not meet the requirements of WAC 173-303-640(4)(b) through (f)? If no, mark N/A for the remaining 5.3 checklist questions.

1.a. If yes, does the closure plan address, for those components, both closure by removal or decontamination (i.e., clean closure), and the contingency of landfill closure? If yes, evaluate adequacy of the information on contingent landfill closure for the tank system components by completing Section 5.5 checklist, Landfill Closure Plan Requirements.

Note: There are no variance requests for tank systems in the Permit, from tank system secondary containment requirements in accordance with WAC 173-303-640(4)(g) and (h). If a tank system has components without compliant secondary containment, the closure plan must address the contingency of landfill closure for those components, in addition to "clean closure".

[WAC 173-303-640(8)(c), -610(3)(a), -806(4)(a)(xiii)]

2. Are there any tank systems that are closing, where the owner or operator has demonstrated that not all contaminated soils can be practicably removed or decontaminated (if applicable, note the document number in the Comments Section).

2.a. If yes, does the closure plan address landfill closure requirements for those tank systems? If yes, evaluate adequacy of the information by completing Section 5.5 checklist, Landfill Closure Plan Requirements.

Note: Where the owner or operator has demonstrated that not all contaminated soils can be practicably removed or decontaminated, the tank system must close as a landfill. The closure plan must meet the closure requirements for landfills under WAC 173-303-610, -620 and -665(6).

[WAC 173-303-640(8)(b), -610(3)(a), -806(4)(a)(xiii)]

6.4 Surface Impoundment Closure Plan Requirements

1. For surface impoundments meeting the design requirements in WAC 173-303-650(2)(a)(i) or (2)(j), (i.e., with two or more liners and one or more leachate collection and removal systems), does the closure plan describe in detail, the following leak detection system monitoring and maintenance activities that must take place during the closure period?

- How the leak detection system will be operated to detect, collect, and remove leaks of dangerous constituents at the earliest practical time through all areas of the top liner likely to be exposed to waste or leachate.
- How the system will be operated to minimize clogging.
- How the system is operated to prevent liquids from backing up into the drainage layer.

- How pumpable liquids in the leak detection sumps are collected and removed to minimize the head on the bottom liner.
- How the system will be operated and monitored to ensure the volume of liquids present in the sump and the volume of liquids removed are measured and recorded? **Note:** The amount of liquids removed from each leak detection system sump must be recorded at least once each week during the closure period.

Note: Design and operational information satisfying leak detection system monitoring and maintenance requirements during the closure period may be incorporated by reference, if already included elsewhere in the unit group Permit chapter (e.g., Addendum C, Process Information, and Addendum I, Inspection Plan).

[-650(2)(j)(iii)(D)-(E), -650(4)(d)(i)]

2. For surface impoundments meeting the design requirements in WAC 173-303-650(2)(a)(i) or (2)(j), (i.e., with two or more liners and one or more leachate collection and removal systems), does the closure plan specify the action leakage rate?

Note: The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding 1 foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

- 2.a. If yes, does the closure plan require the average daily flow rate for each sump be calculated weekly during the closure period?

Note: To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under WAC 173-303-650(4)(d) to an average daily flow rate (gallons per acre per day) for each sump. Unless Ecology approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period.

Note: Design and operational information satisfying leak detection system monitoring and maintenance requirements during the closure period may be incorporated by reference, if already included elsewhere in the unit group Permit chapter (e.g., Addendum C, Process Information, Addendum I, Inspection Plan).

[WAC 137-303-650(10)]

3. Are any of the surface impoundments in the unit group Permit chapter without a liner system, or with a liner system that does not meet the requirements of WAC 173-303-650(2)(a)(i) or -650(2)(j)? If no, mark N/A for the remaining 5.4 checklist questions.

- 3.a. If yes, does the closure plan address closure by removal or decontamination (i.e., clean closure) and the contingency of landfill closure?

Note: There are no variance requests for exempting surface impoundments from the liner requirements in - 650(2)(a)(i), in the Permit [WAC 173-303-650(2)(b)]. Surface impoundments without compliant liners are required to have a closure plan that addresses clean closure and landfill closure. The landfill component of the closure plan must meet all of the closure responsibility requirements for surface impoundments under -665(6)(a)(ii).

[WAC 173-303-610(3)(a), -650(6)(c)(i), -806(4)(a)(xiii), -806(4)(d)(vii)]

4. Does the closure plan include detailed plans and an engineering report demonstrating how the following requirements will be complied with:

- Elimination of free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues?
- Stabilization of remaining wastes to a bearing capacity sufficient to support a final cover?

- Covering the surface impoundment with a final cover designed and constructed to provide long-term minimization of the migration of liquids through the closed impoundment with a material that has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present; function with minimum maintenance; promote drainage and minimize erosion or abrasion of the final cover; and accommodate settling and subsidence so that the cover's integrity is maintained?

Note: The design of the cover must consider the type of climate. For example, with an evapotranspiration cover, the storage layer materials are typically fine-grained soils that are easily wind dispersible. The design of such a final cover should include some sort of "armor" to protect against wind and water erosion, thus minimizing the need for further maintenance. Another example is, although regulations require the cover to be at least as impermeable as the bottom liner, or subsoils (if no liner is present) in order to avoid the build-up of liquids in the closed landfill. In cases where a DWMU must close as a landfill but there is no liner (or the "liner" is highly permeable soils such as what is seen in the Hanford formation), it may be necessary to design a cover with lower permeability than this standard to meet the general closure performance standards in WAC 173-303-610(2)(a).

[WAC 173-303-610(3)(a), -650(6)(a)(ii), -806(4)(a)(xiii), -806(4)(d)(vii)]

5. Does the closure plan contain a construction quality assurance (CQA) plan for the final cover? If yes, does the CQA plan address the following requirements?

- Identification of applicable surface impoundments, and a description of how the final cover will be constructed.
- Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications.
- A description of inspection and sampling activities for the final cover system, including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed final cover components meet the design specifications? The description must cover: Sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded and retained in the operating record under WAC 173-303-380.

[WAC 173-303-335(1)(b)(vi), -335(2)]

6.5 Landfill Closure Plan Requirements

1. Does the unit group Permit chapter have a landfill closure plan or contingent landfill closure plan (if required)?

1.a. Does the closure plan describe in detail, at closure of the landfill, or upon closure of any individual landfill cell, how the permittee will cover the landfill or landfill cell with a final cover?

Note: Non-compliant surface impoundments and tank systems are required to have a contingent landfill closure plan.

[WAC 173-303-610(3)(a), -640(8)(b)-(c), -665(6)(a), -680(2), 40 C.F.R. 264.1102 (incorporated by reference by WAC 173-303-695), -806(4)(a)(xiii), -806(4)(h)(v)]

2. Does the closure plan include detailed plans and an engineering report describing the final landfill cover/landfill cell cover(s) that demonstrate the cover(s) will be designed and constructed to:

- Provide long-term minimization of migration of liquids through the closed landfill?
- Function with minimum maintenance?
- Promote drainage and minimize erosion or abrasion of the cover?
- Accommodate settling and subsidence so that the cover's integrity is maintained?
- Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present?

Note: The design of the cover must consider the type of climate. For example, with an evapotranspiration cover, the storage layer materials are typically fine-grained soils that are easily wind dispersible. The design of such a final cover should include some sort of “armor” to protect against wind and water erosion, thus minimizing the need for further maintenance. Another example is, although regulations require the cover to be at least as impermeable as the bottom liner, or subsoils (if no liner is present) in order to avoid the build-up of liquids in the closed landfill. In cases where a DWMU must close as a landfill but there is no liner (or the “liner” is highly permeable soils such as what is seen in the Hanford formation), it may be necessary to design a cover with lower permeability than this standard to meet the general closure performance standards in WAC 173-303-610(2)(a).

[WAC 173-303-610(3)(a), -665(6)(a), -806(4)(a)(xiii), -806(4)(h)(v)]

3. Does the closure plan include a construction quality assurance (CQA) plan for the final cover? If yes, does the CQA plan address the following requirements?

- Identification of applicable landfill cells, and a description of how the final cover will be constructed.
- Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications.
- A description of inspection and sampling activities for the final cover system, including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed final cover components meet the design specifications? The description must cover: Sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded and retained in the operating record under WAC 173-303-380.

[WAC 173-303-335(1)(b)(vi), -335(2)]

4. For landfills meeting the design requirements in WAC 173-303 -665(2)(h), (i.e., two or more liners and one or more leachate collection and removal systems), does the closure plan describe how the leachate collection and removal system immediately above the top liner will be operated, monitored, and maintained to collect and remove leachate from the landfill during the closure period, and include operating limitations to ensure the leachate depth over the liner does not exceed 12 inches (30.5 cm)?

Note: Design and operational information satisfying leachate collection and removal system monitoring and maintenance requirements during the closure period may be incorporated by reference, if already included elsewhere in the unit group Permit chapter (e.g., in Addendum C, Process Information, Addendum I, Inspection Plan).

[WAC 173-303-610(3)(a), -665(2)(h)(ii), -665(6)(a), -806(4)(a)(xiii), -806(4)(h)(v)]

5. For landfills meeting the design requirements in WAC 173-303-665(2)(h), does the closure plan describe in detail, the following leak detection system monitoring and maintenance activities that must take place during the closure period?

- How the leak detection system will be operated to detect, collect, and remove leaks of dangerous constituents at the earliest practical time through all areas of the top liner likely to be exposed to waste or leachate.
- How the system is operated to minimize clogging.
- How the system is operated to prevent liquids from backing up into the drainage layer including specifying a “pump operating level?”

Note: The “pump operating level” must be specified. The pump operating level is a liquid level proposed by the owner or operator and approved by Ecology based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

- How pumpable liquids in the leak detection sumps are collected and removed to minimize the head on the bottom liner.

- How the system will be operated and monitored to ensure the volume of liquids present in the sump and the volume of liquids removed are measured and recorded.

Note: The amount of liquids removed from each leak detection system sump must be recorded at least once each week during the closure period.

Note: Design and operational information satisfying leak detection system monitoring and maintenance requirements during the closure period may be incorporated by reference, if already included elsewhere in the unit group Permit chapter (e.g., Addendum C, Process Information, Addendum I, Inspection Plan).

[WAC 173-303-610(3)(a), -665(2)(h)(iii)-(iv), -665(4)(c)(i), -665(6)(a), -806(4)(a)(xiii), -806(4)(h)(v)]

6. For landfills meeting the design requirements in WAC 173-303-665(2)(h), does the closure plan specify the action leakage rate?

Note: The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding 1 foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).

- 6.a. If yes, does the closure plan require the average daily flow rate for each sump be calculated weekly during the closure period?

Note: To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under WAC 173-303-665(2)(h) to an average daily flow rate (gallons per acre per day) for each sump. Unless Ecology approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period.

Note: Design and operational information satisfying leak detection system monitoring and maintenance requirements during the closure period may be incorporated by reference, if already included elsewhere in the unit group Permit chapter (e.g., Addendum C, Process Information, Addendum I, Inspection Plan).

[WAC 137-303-610(3)(a), -665(6)(a), -665(8), -806(4)(a)(xiii), -806(4)(h)(v)]

7. Does the closure plan include inspection and operating limitations to be in place during the closure period for the run-on control system that ensures flow onto the landfill during peak discharge from a 25-year storm is prevented?

Note: Design, inspection and operational information satisfying run-on control system monitoring and maintenance requirements may be incorporated by reference, if already included elsewhere in the unit group Permit chapter (e.g., Addendum C, Process Information, Addendum I, Inspection).

[WAC 173-303-610(3)(a)(vi), -665(2)(c), -665(6)(a), -806(4)(a)(xiii), -806(4)(h)(v)]

8. Does the closure plan include inspection and operating limitations to be in place during the closure period for the run-off control system, that ensures the water volume from a 24-hour, 25-year storm is collected and controlled?

Note: Design, inspection and operational information satisfying run-off control system monitoring and maintenance requirements may be incorporated by reference, if already included elsewhere in the unit group Permit chapter (e.g., Addendum C, Process Information, Addendum I, Inspection).

[WAC 173-303-610(3)(a)(vi), -665(2)(d), -665(6)(a), -806(4)(a)(xiii), -806(4)(h)(v)]

9. Does the closure plan provide information on holding facilities (e.g., tanks or basins) associated with run-on and run-off control systems, demonstrating the holding facilities will be emptied or otherwise managed expeditiously and in accordance with WAC 173-303 after storms to maintain design capacity of the run-on/run-off control systems during the closure period?

Note: Design, inspection and operational information satisfying run-on/run-off holding system management may be incorporated by reference, if already included elsewhere in the unit group Permit chapter (e.g., Addendum C, Process Information, Addendum I, Inspection).

[WAC 173-303-610(3)(a)(vi), -665(2)(e), -665(6)(a), -806(4)(a)(xiii), -806(4)(h)(v)]

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
			Conditions, Comment # 1) LLBG Green Islands (Permit Conditions, Comment #s 5, 6, 7)					
Permit Format Consistency	Add. H	5.2-2.	N/A					
-610(3) Closure plan; amendment of plan. (a) The owner or operator of a dangerous waste management facility must have a written closure plan. In addition, certain surface impoundments and waste piles from which the owner or operator intends to remove or decontaminate the dangerous waste at partial or final closure are required by WAC 173-303-650(6) and 173-303-660(9) to have contingent closure plans. The plan must be submitted with the permit application, in accordance with WAC 173-303-806(4), and approved by the department as part of the permit issuance procedures under WAC 173-303-840. The approved closure plan will become a condition of any permit. The department's decision must assure that the approved closure plan is consistent with subsections (2), (3), (4), (5), and (6) of this section, and the applicable requirements of WAC 173-303-630(10), 173-303-640(8), 173-303-645, 173-303-650(6), 173-303-655(8), 173-303-660(9), 173-303-665(6), 173-303-670(8), 173-303-680(2), and 40 C.F.R. 264.1102 (incorporated by reference at WAC 173-303-695). A copy of the approved plan and all revisions to the plan must be furnished to the department upon request, including request by mail until final closure is completed and certified in accordance with subsection (6) of this section. The plan must identify steps necessary to perform partial and/or final closure of the facility at any point during its active life. The closure plan must include at least: (i) A description of how each dangerous waste management unit at the facility will be closed in accordance with subsection (2) of this section; (ii) A description of how final closure of the facility will be conducted in accordance with subsection (2) of this section. The description must identify the maximum extent of the operation which will be unclosed during the active life of the facility;	Add. H	5.2-3.	LLBG Trench 31& 34 (Add. H, Comment # 1) DST & 204-AR WUS (Add. H, Comment #s 1, 8, 11, 33, 50) T-Plant (Permit Conditions, Comment #s 4, 7) Hexone (Add. H, Comment #s 2, 3, 43, 46, 48) 222-S (Closure Plan in Sections H.0, H.3.3.3.2, H.5)					

7. REGULATORY MATRIX MAP OF CLOSURE REQUIREMENTS AND DEFICIENCIES/SOLUTIONS TABLE

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
Permit Format Consistency	Unit Group Addenda Listing	5.1-1.	None					
Permit Format Consistency	Unit Group Conditions	5.1-2.	None					
Permit Format Consistency	Throughout Unit Group Permit Chapter	5.1-3.	None					
Permit Format Consistency	Unit Group Conditions	5.1-4.	None					
<p>-610 Closure and post-closure. (1) Applicability. (a) Subsections (2) through (6) of this section, (which concern closure), apply to the owners and operators of all dangerous waste facilities.</p> <p>-806 Final facility permits. (4) Contents of Part B. Part B of a permit application must consist of the information required in (a) through (m) of this subsection. (a)(xiii) A copy of the closure plan and, where applicable, the post-closure plan required by WAC 173-303-610(3) and (8). Include, where applicable, as part of the plans, specific requirements in WAC 173-303-630(10), 173-303-640(8), 173-303-650(6), 173-303-655(8), 173-303-660(9), 173-303-665(6), 173-303-670(8), and 173-303-680(2) and (4).</p>	Unit Group Condition or Add. H	5.2-1.	<p>DST & 204-AR WUS (Add. H, Comment # 73)</p> <p>241-CX (Permit Conditions, Comment # 5)</p> <p>LLBG Trench 31& 34 (Add. H, Comment # 2)</p> <p>216-S-10 (Permit Conditions, Comment # 2)</p> <p>Hexone (Add. H, Comment #s 6, 27, 37, 48)</p> <p>241-CX (Permit</p>					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
			DST & 204-AR WUS (Add. H, Comment #s 1, 8, 11, 33, 50) T-Plant (Permit Conditions, Comment #s 4, 7) Hexone (Add. H, Comment #s 2, 3, 43, 46, 48) 222-S (Closure Plan in Sections H.0, H.3.3.3.2, H.5)					
-610(3)(a)(ii) -806(4)(a)(xiii)	Add. H	5.2-5.	LLBG Trench 31 & 34 (Add. H, Comment # 1) DST & 204-AR WUS (Add. H, Comment #s 1, 8, 11, 33, 50) T-Plant (Permt Conditions, Comment #s 4, 7) Hexone (Add. H, Comment #s 2, 3, 43, 46, 48) 222-S (Closure Plan in Sections					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>(iii) An estimate of the maximum inventory of dangerous wastes ever on-site over the active life of the facility. (Any change in this estimate is a Class 1 modification with prior approval under WAC 173-303-830(4));</p> <p>(iv) A detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all dangerous wastes, and identification of the type(s) of the off-site dangerous waste management units to be used, if applicable;</p> <p>(v) A detailed description of the steps needed to remove or decontaminate all dangerous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard;</p> <p>(vi) A detailed description of other activities necessary during the closure period to ensure that all partial closures and final closure satisfy the closure performance standards, including, but not limited to, groundwater monitoring, leachate collection, and run-on and runoff control;</p> <p>(vii) A schedule for closure of each dangerous waste management unit and for final closure of the facility. The schedule must include, at a minimum, the total time required to close each dangerous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. (For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all dangerous waste inventory and of the time required to place a final cover must be included.); and</p> <p>(ix) For facilities where the director has applied alternative requirements under subsection (1)(e) of this section, WAC 173-303-645 (1)(f), or 173-303-620 (1)(d), the closure plan must include either the alternative requirements or a reference to the enforceable document that contains the alternative requirements.</p>								
<p>-806(4)(a)(xiii)</p> <p>-610(3)(a)(i)</p> <p>-806(4)(a)(xiii)</p>	Add. H	5.2-4.	LLBG Trench 31& 34 (Add. H, Comment # 1)					

[INSERT UNIT GROUP TITLE HERE]								
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Permit Format Consistency	Throughout Unit Group Permit Chapter	5.2-9.	LLBG Trench 31& 34 (Add. H, Comment # 7)					
-610(2) Closure performance standard. The owner or operator must close the facility in a manner that: (a)(i) Minimizes the need for further maintenance; (ii) Controls, minimizes or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere; and (iii) Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.	Add. H	5.2-10.	LLBG Trench 31& 34 (Add. H, Comment #s 2, 3, 6, 11,12; Permit Conditions, Comment #s 14, 15) DST & 204-AR WUS (Add. H, Comment #s 22, 24, 28, 33, 40, 50) 216-S-10 (Permit Conditions, Comment #s 2, 5, 6) Hexone (Add. H, Comment #s 3, 15, 16, 17; 31, 46) 241-CX (Permit Conditions, Comment # 8) T-Plant (Permit Conditions, Comment #s 3, 23)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
			H.0, H.3.3.3.2, H.5)					
-610(3)(a) -806(4)(a)(xiii)	Add. H	5.2-6.	LLBG Trench 31& 34 (Add. H, Comment #s 1, 10) DST & 204-AR WUS (Add. H, Comment #s 1, 4, 8, 11, 33, 50, 75) T-Plant (Permit Conditions, Comment #s 4, 7) Hexone (Add. H, Comment #s 2, 3, 18, 28, 29, 35, 43, 46, 47, 48) 222-S (Closure Plan in Sections H.0, H.2.1, H.2.3, H.3.3.3.2, H.5) CWC (Add. H, Comment # 10)					
-610(3)(a)(ii) -806(4)(a)(xiii)	Add. H	5.2-7.	None					
-610(3)(a)(iii) -806(4)(a)(xiii)	Add. H	5.2-8.	LLBG Trench 31& 34 (Add. H, Comment # 7)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
			1301-N (8/26/2013) EPA Visit Discussion 1325-N (8/26/2013) LLBG Green Islands (Permit Conditions, Comment #s 5, 6, 7)					
<p>-610(2)(b) Where the closure requirements of this section, or of WAC 173-303-630(10), 173-303-640(8), 173-303-650(6), 173-303-655(6), 173-303-655(8), 173-303-660(9), 173-303-665(6), 173-303-670(8), 173-303-680 (2) through (4), or 40 C.F.R. 264.1102 (incorporated by reference at WAC 173-303-695) call for the removal or decontamination of dangerous wastes, waste residues, or equipment, bases, liners, soils or other materials containing or contaminated with dangerous wastes or waste residue, then such removal or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:</p> <p>(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745; and</p> <p>(ii) For all structures, equipment, bases, liners, etc., clean closure standards will be set by the department on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610 (2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of dangerous waste constituents.</p> <p>-610(3)(a)(i) -610(3)(a)(iv)-(v)</p> <p>-630 Use and management of containers.</p>	Add. H	5.2-10.b.	<p>LLBG Trench 31& 34 (Add. H, Comment #s 2, 3, 6, 11,12; Permit Conditions, Comment #s 14, 15)</p> <p>DST & 204-AR WUS (Add. H, Comment #s 22, 24, 33, 40, 50)</p> <p>216-S-10 (Permit Conditions, Comment #s 2, 5, 6)</p> <p>Hexone (Add. H, Comment #s 3, 15, 16, 17, 46)</p> <p>241-CX (Permit</p>					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
-610(3)(a)(i) -806(4)(a)(xiii)	Add. H	5.2-10.a.	LLBG Trench 31& 34 (Add. H, Comment #s 2, 3, 6, 11,12; Permit Conditions, Comment #s 14, 15) DST & 204-AR WUS (Add. H, Comment #s 22, 24, 33, 40, 50) 216-S-10 (Permit Conditions, Comment #s 2, 5, 6, 12) Hexone (Add. H, Comment #s 3, 6, 15, 16, 17, 27, 37, 46, 48) 241-CX (Permit Conditions, Comment #s 1, 8) T-Plant (Permit Conditions, Comment #s 3, 23) EPA Visit Discussion –					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>responsibility for containment buildings must meet all of the requirements specified in subparts G and H of this part.</p> <p>-806(4)(a)(xiii)</p> <p>-806(4)(d) Specific Part B information requirements for surface impoundments. (vii) A description of how dangerous waste residues and contaminated materials will be removed from the unit at closure, as required under WAC 173-303-650 (6)(a)(i). For any wastes not to be removed from the unit upon closure, the owner or operator must submit detailed plans and an engineering report describing how WAC 173-303-650 (6)(a)(ii) and (b) will be complied with. This information should be included in the closure plan and, where applicable, the post-closure plan submitted under (a)(xiii) of this subsection;</p> <p>-806(4)(i) Specific Part B information requirements for miscellaneous units. (i) A detailed description of the unit being used or proposed for use, including the following: (B) Detailed plans and engineering reports describing how the unit will be located, designed, constructed, operated, maintained, monitored, inspected, and closed to comply with the requirements of WAC 173-303-680 (2) and (3); and</p>								
<p>-610(1)(e) Except for subsection (2)(a) of this section, the director may, in an enforceable document, replace all or part of the requirements of this section and the unit-specific requirements in subsection (2)(b) of this section with alternative requirements when he or she determines: (i) A dangerous waste unit is situated among other solid waste management units or areas of concern, a release has occurred, and both the dangerous waste unit and one or more of the solid waste management units or areas of concern are likely to have contributed to the release; and (ii) It is not necessary to apply the requirements of this section (or the unit-specific requirements referenced in subsection (2)(b) of this section) because the alternative requirements will protect human health and the environment.</p> <p>-610(2)(a)</p>	Condition II.J.6, Add. H	5.2-10.c.	<p>LLBG Trench 31& 34 (Add. H, Comment #s 2, 3, 6, 11,12; Permit Conditions, Comment #s 14, 15)</p> <p>DST & 204-AR WUS (Add. H, Comment #s 22, 24, 33, 40, 50)</p>					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>(10) Closure. At closure, all dangerous waste and dangerous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with dangerous waste or dangerous waste residues must be decontaminated or removed.</p> <p>-640 Tank systems.</p> <p>(8) Closure and post-closure care. (a) At closure of a tank system, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as dangerous waste, unless WAC 173-303-070 (2)(a) applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in WAC 173-303-610 and 173-303-620.</p> <p>-650 Surface Impoundments.</p> <p>(6) Closure and post-closure care. (a) At closure, the owner or operator must: (i) Remove or decontaminate all dangerous waste and dangerous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with dangerous waste and leachate, and manage them as dangerous waste; or</p> <p>-680 Miscellaneous Units.</p> <p>(2) Environmental performance standards. A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment.</p> <p>-695 Containment buildings. (incorporates by reference 40 C.F.R. Part 264 Subpart DD)</p> <p>264.1102 Closure and post-closure care. (a) At closure of a containment building, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.) contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless §261.3(d) of this chapter applies. The closure plan, closure activities, cost estimates for closure, and financial</p>			<p>Conditions, Comment # 8)</p> <p>T-Plant (Permit Conditions, Comment #s 3, 23)</p>					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>WAC 173-303-695) call for the removal or decontamination of dangerous wastes, waste residues, or equipment, bases, liners, soils or other materials containing or contaminated with dangerous wastes or waste residue, then such removal or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:</p> <p>(i) For soils, groundwater, surface water, and air, the numeric cleanup levels calculated using unrestricted use exposure assumptions according to the Model Toxics Control Act Regulations, chapter 173-340 WAC as of the effective date or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745; and</p> <p>(ii) For all structures, equipment, bases, liners, etc., clean closure standards will be set by the department on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610 (2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of dangerous waste constituents.</p>			<p>LLBG Trench 31& 34 (Add. H, Comment #s 2, 3, 6, 11,12; Permit Conditions, Comment #s 14, 15)</p> <p>DST & 204-AR WUS (Add. H, Comment #s 22, 24, 33, 40, 50)</p> <p>216-S-10 (Permit Conditions, Comment #s 2, 5, 6)</p> <p>Hexone (Add. H, Comment #s 3, 15, 16, 17, 46)</p> <p>241-CX (Permit Conditions, Comment # 8)</p> <p>T-Plant (Permit Conditions, Comment #s 3, 23)</p>					
<p>-610(2)(b)(i)</p> <p>-610(3)(a)(i)</p> <p>-630(10)</p> <p>-640(8)(a)</p> <p>-650(6)(a)(i)</p>	Add. H	5.2-11.a.	<p>LLBG Trench 31& 34 (Add. H, Comment #s 2, 3, 6, 11,12; Permit</p>					

[INSERT UNIT GROUP TITLE HERE]								
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			216-S-10 (Permit Conditions, Comment #s 2, 5, 6, 12) Hexone (Add. H, Comment #s 3, 6, 15, 16, 17, 27, 46, 48) 241-CX (Permit Conditions, Comment #s 1, 8) T-Plant (Permit Conditions, Comment #s 3, 23) EPA Visit Discussion – 1301_N (8/26/2013) EPA Visit Discussion 1325-N (8/26/2013) LLBG Green Islands (Permit Conditions, Comment #s 5, 6, 7)					
-610(2)(b) Where the closure requirements of this section, or of WAC 173-303-630(10), 173-303-640(8), 173-303-650(6), 173-303-655(6), 173-303-655(8), 173-303-660(9), 173-303-665(6), 173-303-670(8), 173-303-680 (2) through (4), or 40 C.F.R. 264.1102 (incorporated by reference at	Add. H	5.2-11.	CWC (Add. H, Comment #s 1, 3, 5, 15)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
-806(4)(d)(vii) -806(4)(i)(i)(B)			Comment #s 14, 15) DST & 204-AR WUS (Add. H, Comment #s 8, 9, 22, 24, 27, 28, 33, 40, 50, 55, 58) 216-S-10 (Permit Conditions, Comment #s 2, 5, 6) Hexone (Add. H, Comment #s 3, 15, 16, 17, 32, 46) 241-CX (Permit Conditions, Comment # 8) T-Plant (Permit Conditions, Comment #s 3, 23) 222-S (Closure Plan in Sections H.1, H.2.1, H.3.3.3) CWC (Add. H, Comment # 3)					
-610(3)(a)(iv)-(v) -630(10) -640(8)(a)	Add. H	5.2-12.	222-S (Closure Plan in Sections					

[INSERT UNIT GROUP TITLE HERE]								
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-680(2) -695 (incorporating 40 CFR 264.1102(a))-806(4)(a)(xiii) -806(4)(d)(vii) -806(4)(i)(i)(B)			Conditions, Comment #s 14, 15) DST & 204-AR WUS (Add. H, Comment #s 22, 24, 33, 40, 50) 216-S-10 (Permit Conditions, Comment #s 2, 5, 6) Hexone (Add. H, Comment #s 3, 15, 16, 17, 46) 241-CX (Permit Conditions, Comment # 8) T-Plant (Permit Conditions, Comment #s 3, 23)					
-610(2)(b)(ii) -610(3)(a)(i) -630(10) -640(8)(a) -650(6)(a)(i) -680(2) -695 (incorporating 40 CFR 264.1102(a))-806(4)(a)(xiii)	Add. H	5.2-11.b.	LLBG Trench 31& 34 (Add. H, Comment #s 2, 3, 6, 9, 11,12; Permit Conditions,					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
			<p>CWC (Add. H, Comment #s 1, 3, 4, 5, 15)</p> <p>222-S (Closure Plan in Sections H.1, H.2.1, H.3.2.1, H.3.3.1, H.3.3.3)</p> <p>LLBG Trench 31& 34 (Add. H, Comment # 9)</p> <p>Hexone (Add. H, Comment #s 32, 38)</p>					
<p>-610(3)(a)(v)</p> <p>-610(5) Disposal or decontamination of equipment, structures and soils. During the partial and final closure periods, all contaminated equipment, structures and soils must be properly disposed of or decontaminated unless otherwise specified in WAC 173-303-640(8), 173-303-650(6), 173-303-655(8), 173-303-660(9), 173-303-665(6), or under the authority of WAC 173-303-680 (2) and (4). By removing any dangerous wastes or dangerous constituents during partial and final closure, the owner or operator may become a generator of dangerous waste and must handle that waste in accordance with all applicable requirements of WAC 173-303-170 through 173-303-230.</p> <p>-630(10)</p> <p>-640(8)(a)</p> <p>-650(6)(a)(i)</p> <p>-680(2)</p> <p>-695 (incorporating 40 CFR 264.1102(a))</p> <p>-806(4)(a)(xiii)</p> <p>-806(4)(d)(vii)</p> <p>-806(4)(i)(i)(B)</p>	Add. H	5.2-15.	<p>DST & 204-AR WUS (Add. H, Comment #s 8, 15, 16, 29, 30, 33)</p> <p>Hexone (Add. H, Comment #s 19, 21, 24)</p> <p>CWC (Add. H, Comment #s 1, 3, 5, 15)</p> <p>LLBG Trench 31& 34 (Add. H, Comment #s 9, 10, 10A)</p>					

[INSERT UNIT GROUP TITLE HERE]								
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-650(6)(a)(i) -680(2) -695 (incorporating 40 CFR 264.1102(a))-806(4)(a)(xiii) -806(4)(d)(vii) -806(4)(i)(i)(B)			H.2.2, H.3.2.1, H.3.2.2) DST & 204-AR WUS (Add. H, Comment #s 8, 15, 16, 27, 29, 30, 32, 33, 43, 55, 58) Hexone (Add. H, Comment #s 19, 21, 24, 26)					
-610(3)(a)(v) -630(10) -640(8)(a) -650(6)(a)(i) -680(2) -695 (incorporating 40 CFR 264.1102(a))-806(4)(a)(xiii) -806(4)(d)(vii) -806(4)(i)(i)(B)	Add. H	5.2-13.	DST & 204-AR WUS (Add. H, Comment #s 27, 55, 58) CWC (Add. H, Comment # 3) 222-S (Closure Plan in Sections H.1, H.2.1, H.3.3.3) Hexone (Add. H, Comment #s 18, 28, 29, 35, 47)					
-610(3)(a)(v) -630(10) -640(8)(a) -650(6)(a)(i) -680(2) -695 (incorporating 40 CFR 264.1102(a)) -806(4)(a)(xiii) -806(4)(d)(vii) -806(4)(i)(i)(B)	Add. H	5.2-14.	DST & 204-AR WUS (Add. H, Comment #s 8, 9, 27, 28, 30, 31, 41, 44, 45, 53, 54, 55, 56, 58)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
-806(4)(a)(xiii)								
-610(3)(a)(vi) -806(4)(a)(xiii)	Add. H	5.2-18.a.	None					
-610(3)(a)(vi) -806(4)(a)(xiii)	Add. H	5.2-18.b.	None					
-610(3)(a)(vi) -806(4)(a)(xiii)	Add. H	5.2-18.c.	None					
-610(3)(a)(vi) -806(4)(a)(xiii)	Add. H	5.2-19.	LLBG Trench 31 & 34 (Add. H, Comment # 14) 216-S-10 (Permit Conditions, Comment # 4) DST & 204-AR WUS (Add. H, Comment #s 65, 71; Permit Conditions, Comment # 28) 222-S (Closure Plan in Section H.5) T-Plant (Permit Conditions, Comment #s 3, 23)					
-610(3)(a)(vii) -806(4)(a)(xiii)	Add. H	5.2-19.a.	LLBG Trench 31 & 34 (Add. H, Comment # 14) 216-S-10 (Permit					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
-610(5)	Add. H	5.2-16.	DST & 204-AR WUS (Add. H, Comment #s 28, 29, 41) Hexone (Add. H, Comment #s 26, 38)					
-610(3)(a)(v) -806(4)(a)(xiii)	Add. H	5.2-17.	Hexone (Add. H, Comment #s 18, 19, 21, 24, 28, 29, 35, 47, 50) CWC (Add. H, Comment # 10) 222-S (Closure Plan in Sections H.2.1, H.2.3, H.3.3.5) 216-S-10 (Permit Conditions, Comment #s 7, 8, 10) 241-CX (Permit Conditions, Comment #s 10, 11) DST & 204-AR WUS (Add. H, Comment #s 4, 35, 36, 37, 38, 60, 61, 75)					
-610(3)(a)(vi)	Add. H	5.2-18.	None					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
			T-Plant (Permit Conditions, Comment #s 3, 23)					
<p>-610(3)(a)(vii)</p> <p>-610(4) Closure; time allowed for closure.</p> <p>(a) Within ninety days after receiving the final volume of dangerous wastes, or the final volume of nondangerous wastes if the owner or operator complies with all applicable requirements in (d) and (e) of this subsection, at a dangerous waste management unit or facility, the owner or operator must treat, remove from the unit or facility, or dispose of on site, all dangerous wastes in accordance with the approved closure plan. The department may approve a longer period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that he has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, and either:</p> <p>(i) The activities required to comply with this paragraph will, of necessity, take longer than ninety days to complete; or</p> <p>(ii)(A) The dangerous waste management unit or facility has the capacity to receive additional dangerous wastes, or has the capacity to receive nondangerous wastes if the owner or operator complies with (d) and (e) of this subsection;</p> <p>(B) There is a reasonable likelihood that he or another person will recommence operation of the dangerous waste management unit or the facility within one year; and</p> <p>(C) Closure of the dangerous waste management unit or facility would be incompatible with continued operation of the site.</p> <p>(b) The owner or operator must complete partial and final closure activities in accordance with the approved closure plan and within one hundred eighty days after receiving the final volume of dangerous wastes, or the final volume of nondangerous wastes if the owner or operator complies with all applicable requirements in (d) and (e) of this subsection, at the dangerous waste management unit or facility. The department may approve an extension to the closure period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that he has taken and will</p>	Add. H	5.2-19.c.	<p>LLBG Trench 31& 34 (Add. H, Comment # 15)</p> <p>DST & 204-AR WUS (Add. H, Comment # 65)</p> <p>Hexone (Add. H, Comment # 42)</p> <p>222-S (Closure Plan in Section H.5)</p> <p>T-Plant (Permit Conditions, Comment #s 3, 23)</p>					

[INSERT UNIT GROUP TITLE HERE]								
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			Conditions, Comment # 4) DST & 204-AR WUS (Add. H, Comment #s 65, 71; Permit Conditions, Comment # 28) 222-S (Closure Plan in Section H.5) T-Plant (Permit Conditions, Comment #s 3, 23)					
-610(3)(a)(vii) -806(4)(a)(xiii)	Add. H	5.2-19.b.	LLBG Trench 31& 34 (Add. H, Comment # 14) 216-S-10 (Permit Conditions, Comment # 4) DST & 204-AR WUS (Add. H, Comment #s 65, 71; Permit Conditions, Comment # 28) 222-S (Closure Plan in Section H.5)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
one year after the date on which the unit received the most recent volume of dangerous waste. If the owner or operator of a dangerous waste management unit can demonstrate to the department that the dangerous waste management unit or facility has the capacity to receive additional dangerous wastes and he has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the department may approve an extension to this one-year limit; or (B) For units meeting the requirements of subsection (4)(d) of this section, no later than thirty days after the date on which the dangerous waste management unit receives the known final volume of nondangerous wastes, or if there is a reasonable possibility that the dangerous waste management unit will receive additional nondangerous wastes, no later than one year after the date on which the unit received the most recent volume of nondangerous wastes. If the owner or operator can demonstrate to the department that the dangerous waste management unit has the capacity to receive additional nondangerous wastes and he has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the department may approve an extension to this one-year limit. (iii) If the facility’s permit is terminated, or if the facility is otherwise ordered, by judicial decree or final order to cease receiving dangerous wastes or to close, then the requirements of (c) of this subsection do not apply. However, the owner or operator must close the facility in accordance with the deadlines established in subsection (4) of this section. (iv) Removal of wastes and decontamination or dismantling of equipment. Nothing in this subsection will preclude the owner or operator from removing dangerous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of partial or final closure.								
-610(3)(c)(ii)(A)	Add. H	19.e.	DST & 204-AR WUS (Add. H, Comment #s 72, 73; Permit Conditions,					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>continue to take all steps to prevent threats to human health and the environment from the unclosed but not operating dangerous waste management unit or facility, including compliance with all applicable permit requirements, and either:</p> <p>(i) The partial or final closure activities will, of necessity, take longer than one hundred eighty days to complete; or</p> <p>(ii)(A) The dangerous waste management unit or facility has the capacity to receive additional dangerous wastes, or has the capacity to receive nondangerous wastes if the owner or operator complies with (d) and (e) of this subsection;</p> <p>(B) There is reasonable likelihood that he or another person will recommence operation of the dangerous waste management unit or the facility within one year; and</p> <p>(C) Closure of the dangerous waste management unit or facility would be incompatible with continued operation of the site.</p> <p>(c) The demonstrations referred to in (a)(i) and (ii) and (b)(i) and (ii) of this subsection must be made as follows: The demonstrations in (a)(i) and (ii) of this subsection must be made at least thirty days prior to the expiration of the specified ninety-day period; and the demonstration in (b)(i) and (ii) of this subsection must be made at least thirty days prior to the expiration of the specified one hundred eighty-day period unless the owner or operator is otherwise subject to the deadlines in (d) of this subsection.</p> <p>-806(4)(a)(xiii)</p>								
<p>-610(3)(c) Notification of partial closure and final closure.</p> <p>(i) The owner or operator must notify the department in writing at least sixty days prior to the date on which they expect to begin closure of a surface impoundment, waste pile, land treatment, or landfill unit, or final closure of a facility with such a unit. The owner or operator must notify the department in writing at least forty-five days prior to the date on which they expect to begin closure of a treatment or storage tank, container storage, or incinerator unit, or final closure of a facility with only such units.</p> <p>(ii) The date when he “expects to begin closure” must be either:</p> <p>(A) No later than thirty days after the date on which any dangerous waste management unit receives the known final volume of dangerous wastes or, if there is a reasonable possibility that the dangerous waste management unit will receive additional dangerous wastes, no later than</p>	Add. H	5.2-19.d.	<p>DST & 204-AR WUS (Add. H, Comment # 2)</p> <p>222-S (Closure Plan in Section H.0)</p>					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
department by registered mail or other means that establish proof of receipt (including applicable electronic means), a certification that the dangerous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent qualified registered professional engineer. Documentation supporting the independent qualified registered professional engineer's certification must be furnished to the department upon request until it releases the owner or operator from the financial assurance requirements for closure under WAC 173-303-620(4).								
-610(9) Notice to local land authority. No later than the submission of the certification of closure of each dangerous waste disposal unit, the owner or operator of a disposal facility must submit to the local zoning authority or the authority with jurisdiction over local land use and to the department a survey plat indicating the location and dimensions of landfill cells or other dangerous waste disposal units with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor. The plat filed with the local zoning authority or the authority with jurisdiction over local land use must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the dangerous waste disposal unit in accordance with the applicable requirements of this section. In addition, no later than sixty days after certification of closure of each dangerous waste disposal unit, the owner or operator must submit to the local zoning authority or the authority with jurisdiction over local land use and to the department, a record of the type, location, and quantity of dangerous wastes disposed of within each cell or other disposal unit of the facility. For wastes disposed of before November 19, 1980 (March 12, 1982, for facilities subject to this chapter but not subject to 40 C.F.R. Part 264), the owner or operator must identify the type, location, and quantity of the dangerous wastes to the best of his knowledge and in accordance with any records he has kept.	Unit Group Condition or Add. H	5.2-22.	None					
-610(9) -610(10) Notice in deed to property. (a) No later than sixty days after certification of closure of each dangerous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the department a record of the type, location, and quantity of	Unit Group Condition or Add. H	5.2-23.	None					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
			Comment #s 2, 33)					
<p>-610(1)(e)</p> <p>-610(3)(a)(ix) For facilities where the director has applied alternative requirements under subsection (1) (e) of this section, WAC 173-303-645 (1)(f), or 173-303-620 (1)(d), the closure plan must include either the alternative requirements or a reference to the enforceable document that contains the alternative requirements.</p> <p>-806(4)(a)(xiii)</p>	Condition II.J.6, Add. H	5.2-20.	<p>216-S-10 (Permit Conditions, Comment #s 2, 12)</p> <p>EPA Visit Discussion -- 1301_N (8/26/2013)</p> <p>EPA Visit Discussion 1325-N (8/26/2013)</p> <p>LLBG Trench 31& 34 (Add. H, Comment # 2)</p> <p>Hexone (Add. H # 6, 27, 37, 48)</p> <p>241-CX (Permit Conditions, # 1)</p> <p>LLBG Green Islands (Permit Conditions #s 5, 6, 7)</p>					
-610(1)(e)	Condition II.J.6, Add. H, Fact Sheet	5.2-20.a.	None					
-610(6) Certification of closure. Within sixty days of completion of closure of each dangerous waste management unit (including tank systems and container storage areas), and within sixty days of the completion of final closure, the owner or operator must submit to the	Condition II.J.7, Unit Group Condition or Add. H	5.2-21.	DST & 204-AR WUS (Add. H # 52)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
See Security CAP for security requirements.	Add. H or Add. E	5.2-27.	241-CX (Permit Conditions # 14) Hexone (Permit Conditions # 11)					
<p>-610(3)(b) The owner or operator must submit a written notification of or request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the applicable procedures in WAC 173-303-800 through 173-303-840. The written notification or request must include a copy of the amended closure plan for review or approval by the department.</p> <p>(i) The owner or operator may submit a written notification or request to the department for a permit modification to amend the closure plan at any time prior to the notification of partial or final closure of the facility.</p> <p>(ii) The owner or operator must submit a written notification of or request for a permit modification to authorize a change in the approved closure plan whenever:</p> <p>(A) Changes in operating plans or facility design affect the closure plan; or</p> <p>(B) There is a change in the expected year of closure, if applicable; or</p> <p>(C) In conducting partial or final closure activities, unexpected events require a modification of the approved closure plan; or</p> <p>(D) The owner/operator requests the director apply alternative requirements under subsection (1)(e) of this section, WAC 173-303-645 (1)(f), or 173-303-620 (1)(d).</p> <p>(iii) The owner or operator must submit a written request for a permit modification including a copy of the amended closure plan for approval at least sixty days prior to the proposed change in facility design or operation, or no later than sixty days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the owner or operator must request a permit modification no later than thirty days after the unexpected event. An owner or operator of a surface impoundment or waste pile that intends to remove all dangerous waste at closure and is not otherwise required to prepare a contingent closure plan under WAC 173-303-650(6) or 173-303-660(9), must submit an amended closure</p>	Add. H	5.2-28.	CWC (Add. H, Comment # 9)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
dangerous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes (as defined in WAC 173-303-040) disposed of before January 12, 1981, the owner or operator must identify the type, location, and quantity of the dangerous wastes to the best of his knowledge and in accordance with any records he has kept.								
-610(10)(b) Within sixty days of certification of closure of the first dangerous waste disposal unit and within sixty days of certification of closure of the last dangerous waste disposal unit, the owner or operator must: (i) Record, in accordance with state law, a notation on the deed to the facility property, or on some other instrument which is normally examined during title search, that will in perpetuity notify any potential purchaser of the property that: (A) The land has been used to manage dangerous wastes; (B) Its use is restricted under this section; and (C) The survey plat and record of the type, location, and quantity of dangerous wastes disposed of within each cell or other dangerous waste disposal unit of the facility required in subsection (9) of this section have been filed with the local zoning authority, or the authority with jurisdiction over local land use, and with the department; and (ii) Submit a certification, signed by the owner or operator, that he has recorded the notation specified in (b)(i) of this subsection, including a copy of the document in which the notation has been placed, to the department.	Unit Group Condition or Add. H	5.2-24.	None					
See Training CAP for training requirements.	Add. H or Add. G	5.2-25.	Hexone (Add. H # 40)					
See Inspection CAP for inspection requirements.	Add. H or Add. I	5.2-26.	241-CX (Permit Conditions # 15) Hexone (Permit Conditions # 12) LLBG Green Islands (Permit Conditions # 9)					

[INSERT UNIT GROUP TITLE HERE]								
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<p>(iii) The cost estimates calculated for closure and post-closure care must reflect the costs of complying with the contingent closure plan and the contingent post-closure plan, if those costs are greater than the costs of complying with the closure plan prepared for the expected closure under (a) of this subsection.</p> <p>(iv) Financial assurance must be based on the cost estimates in (c)(iii) of this subsection.</p> <p>(v) For the purposes of the contingent closure and post-closure plans, such a tank system is considered to be a landfill, and the contingent plans must meet all of the closure, post-closure, and financial responsibility requirements for landfills under this chapter (WAC 173-303-610 and 173-303-620).</p> <p>-806(4)(a)(xiii)</p>								
<p>-610(3)(a) -640(8)(c) -806(4)(a)(xiii)</p>	Condition II.H.1, Add. H	5.3-1.a.	None					
<p>-610(3)(a)</p> <p>-640(8)(b) If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in (a) of this subsection, then the owner or operator must close the tank system and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills (see WAC 173-303-665(6)). In addition, for the purposes of closure, post-closure, and financial responsibility, such a tank system is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in WAC 173-303-610 and 173-303-620.</p> <p>-806(4)(a)(xiii)</p>	Administrative Record	5.3-2.	DST & 204-AR WUS (Add. H # 5, 21) 222-S (Closure Plan Section H.3)					
<p>-610(3)(a) -640(8)(b) -806(4)(a)(xiii)</p>	Add. H	5.3-2.a.	None					
<p>-650 Surface Impoundments. (2) Design and operating requirements. (j) The owner or operator of each new surface impoundment unit on which construction commences after January 29, 1992, each lateral expansion of a surface impoundment unit on which construction</p>	Add. C, Add. H, Add. I	5.4-1.	LLBG Trench 31 & 34 (Conditions # 20)					

[INSERT UNIT GROUP TITLE HERE]								
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plan to the department no later than sixty days from the date that the owner or operator or department determines that the dangerous waste management unit must be closed as a landfill, subject to the requirements of WAC 173-303-665, or no later than thirty days from that date if the determination is made during partial or final closure. The department will approve, disapprove, or modify this amended plan in accordance with the procedures in WAC 173-303-800 through 173-303-840. The approved closure plan will become a condition of any permit issued. (iv) The department may request modifications to the plan under the conditions described in (b)(ii) of this subsection. The owner or operator must submit the modified plan within sixty days of the department's request, or within thirty days if the change in facility conditions occurs during partial or final closure. Any modifications requested by the department will be approved in accordance with the procedures in WAC 173-303-800 through 173-303-840.								
-610(3)(b)(iii)	Add. H	5.2-28.a.	CWC (Add. H, Comment #s 7, 8, 16)					
-610(3)(b)(iii)	Add. H	5.2-28.b.	CWC (Add. H, Comment #s 7, 8, 16)					
-610(3)(a)(iv) -610(3)(a)(v)	Add. H	5.2-29.	DST & 204-AR WUS (Add. H, Comment # 14)					
-610(3)(a) -640(8)(c) If an owner or operator has a tank system that does not have secondary containment that meets the requirements of subsection (4)(b) through (f) of this section and is not exempt from the secondary containment requirements in accordance with subsection (4)(g) of this section, then: (i) The closure plan for the tank system must include both a plan for complying with (a) of this subsection and a contingent plan for complying with (b) of this subsection. (ii) A contingent post-closure plan for complying with (b) of this subsection must be prepared and submitted as part of the permit application.	Condition II.H.1, Add. H	5.3-1.	Hexone (Add. H #s 4, 5, 14, 15, 35, 36, 45, 46) 241-CX (Permit Conditions # 5)					

[INSERT UNIT GROUP TITLE HERE]								
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likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.). (b) To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under WAC 173-303-650(4)(d) to an average daily flow rate (gallons per acre per day) for each sump. Unless the department approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and if the unit is closed in accordance with WAC 173-303-650(6)(b), monthly during the post-closure care period when monthly monitoring is required under WAC 173-303-650(4)(d).			Hexone (Permit Conditions, Comment # 12) LLBG Green Islands (Permit Conditions, Comment # 9)					
-650(10)(b)	Add. C, Add. H, Add. I	5.4-2.a.	None					
-610(3)(a) -650(6)(c)(i) If an owner or operator plans to close a surface impoundment in accordance with (a)(i) of this subsection, and the impoundment does not comply with the liner requirements of subsection (2)(a)(i) of this section, and is not exempt from them in accordance with subsection (2)(b) of this section, then: (A) The closure plan for the impoundment under WAC 173-303-610(3) must include both a plan for complying with (a)(i) of this subsection, and a contingent plan for complying with (a)(ii) of this subsection in case not all contaminated subsoils can be practicably removed at closure; and (B) The owner or operator must prepare a contingent post-closure plan under WAC 173-303-610(8) for complying with (b) of this subsection in case not all contaminated subsoils can be practicably removed at closure. (ii) The cost estimates calculated under WAC 173-303-620 (3) and (5) for closure and post-closure care of an impoundment subject to (c) of this subsection must include the cost of complying with the contingent closure plan and the contingent post-closure plan, but are not required to include the cost of expected closure under (a)(i) of this subsection.	Add. H	5.4-3.	None					
-806(4)(a)(xiii)								

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>commences after July 29, 1992, and each replacement of an existing surface impoundment unit that is to commence reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system between such liners. "Construction commences" is as defined in WAC 173-303-040 under "existing TSD facility."</p> <p>(iii) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of dangerous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum:</p> <p>(D) Designed and operated to minimize clogging during the active life and post-closure care period; and</p> <p>(E) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump(s). The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.</p> <p>(iv) The owner or operator will collect and remove pumpable liquids in the sumps to minimize the head on the bottom liner.</p> <p>-650(4) Monitoring and inspection.</p> <p>(d)(i) An owner or operator required to have a leak detection system under subsection (2)(j) or (k) of this section must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.</p>			<p>241-CX (Permit Conditions # 15)</p> <p>Hexone (Permit Conditions # 12)</p> <p>LLBG Green Islands (Permit Conditions # 9)</p>					
<p>-650(10) Action leakage rate.</p> <p>(a) The department must approve an action leakage rate for surface impoundment units subject to WAC 173-303-650(2)(j) or (k). The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding 1 foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics,</p>	Add. C, Add. H, Add. I	5.4-2.	<p>LLBG Trench 31& 34 (Permit Conditions, Comment # 20)</p> <p>241-CX (Permit Conditions, Comment # 15)</p>					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
-806(4)(d)								
-335(1) CQA program. (b) The CQA program must address the following physical components, where applicable: (vi) Final cover systems. -335(2) Written CQA plan. The owner or operator of units subject to the CQA program under (a) of this subsection must develop and implement a written CQA plan. The plan must identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The CQA plan must include: (a) Identification of applicable units, and a description of how they will be constructed. (b) Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications. (c) A description of inspection and sampling activities for all unit components identified in subsection (1)(b) of this section, including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description must cover: Sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded and retained in the operating record under WAC 173-303-380.	Add. H	5.4-5.	LLBG Trench 31& 34 (Add. H, Comment #s 2, 5, 12; Permit Conditions, Comment #s 14, 15) 216-S-10 (Permit Conditions, Comment # 2) NRDWL (1/21/2010 Letter from R. Albright to R. Skinnarland)					
-610(3)(a) -665 Landfills. (6) Closure and post-closure care. (a) At final closure of the landfill or upon closure of any cell, the owner or operator must cover the landfill or cell with a final cover designed and constructed to: (i) Provide long-term minimization of migration of liquids through the closed landfill; (ii) Function with minimum maintenance; (iii) Promote drainage and minimize erosion or abrasion of the cover; (iv) Accommodate settling and subsidence so that the cover's integrity is maintained; and	Add. H	5.5-1.	None					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
-806(4)(d) Specific Part B information requirements for surface impoundments. Except as otherwise provided in WAC 173-303-600(3), owners and operators of facilities that store, treat, or dispose of dangerous waste in surface impoundments must provide the following additional information: (vii) A description of how dangerous waste residues and contaminated materials will be removed from the unit at closure, as required under WAC 173-303-650 (6)(a)(i). For any wastes not to be removed from the unit upon closure, the owner or operator must submit detailed plans and an engineering report describing how WAC 173-303-650 (6)(a)(ii) and (b) will be complied with. This information should be included in the closure plan and, where applicable, the post-closure plan submitted under (a)(xiii) of this subsection;								
-610(3)(a) -650(6)(c)(i) -806(4)(a)(xiii) -806(4)(d)	Add. H	5.4-3.a.	None					
-610(3)(a) -650(6)(a)(ii) If the surface impoundment will be closed as a landfill, except that this option is prohibited if EHW would remain in the closed unit(s): (A) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues; (B) Stabilize remaining wastes to a bearing capacity sufficient to support a final cover; and (C) Cover the surface impoundment with a final cover designed and constructed to: (I) Provide long-term minimization of the migration of liquids through the closed impoundment with a material that has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present; (II) Function with minimum maintenance; (III) Promote drainage and minimize erosion or abrasion of the final cover; and (IV) Accommodate settling and subsidence so that the cover's integrity is maintained. -806(4)(a)(xiii)	Add. H	5.4-4.	LLBG Trench 31& 34 (Add. H, Comment #s 2, 5, 12; Permit Conditions, Comment #s 14, 15) 216-S-10 (Permit Conditions, Comment # 2) NRDWL (1/21/2010 Letter from R. Albright to R. Skinnarland)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
-610(3)(a) -665(6)(a) -806(4)(a)(xiii) -806(4)(h)(v)	Add. H	5.5-2.	LLBG Trench 31& 34 (Add. H, Comment #s 2, 5, 12; Permit Conditions, Comment #s 14, 15) 216-S-10 (Permit Conditions, Comment # 2) NRDWL (1/21/2010 Letter from R. Albright to R. Skinnarland)					
-335(1)(b)(vi) -335(2)	Add. H	5.5-3.	LLBG Trench 31& 34 (Add. H, Comment #s 2, 5, 12; Permit Conditions, Comment #s 14, 15) 216-S-10 (Permit Conditions, Comment # 2) NRDWL (1/21/2010 Letter from R. Albright to R. Skinnarland)					
-610(3)(a) -665(2)(h) The owner or operator of each new landfill unit on which construction commences after January 29, 1992, each lateral expansion of a landfill unit on which construction commences after July 29, 1992,	Add. C, Add. H, Add. I	5.5-4.	LLBG Trench 31& 34 (Permit Conditions, Comment # 20)					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>(v) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.</p> <p>-640(8)(b)-(c)</p> <p>-695 Containment buildings. (incorporates by reference 40 C.F.R. Part 264 Subpart DD) 264.1102 Closure and post-closure care. (b) If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in paragraph (a) of this section, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must close the facility and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills (§264.310). In addition, for the purposes of closure, post-closure, and financial responsibility, such a containment building is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in subparts G and H of this part.</p> <p>-680(2) -806(4)(a)(xiii)</p> <p>-806(4)(h) Specific Part B information requirements for landfills. Except as otherwise provided in WAC 173-303-600(3), owners and operators of facilities that dispose of dangerous waste in landfills must provide the following additional information; (v) Detailed plans and an engineering report describing the final cover which will be applied to each landfill or landfill cell at closure in accordance with WAC 173-303-665(6)(a), and a description of how each landfill will be maintained and monitored after closure in accordance with WAC 173-303-665(6)(b) and (c). This information should be included in the closure and post-closure plans submitted under (a)(xiii) of this subsection;</p>								
<p>-610(3)(a) -665(6)(a) -806(4)(a)(xiii) -806(4)(h)(v)</p>	Add. H	5.5-1.a.	None					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>-665(4) Monitoring and inspection. (c)(i) An owner or operator required to have a leak detection system under subsection (2)(h) or (j) of this section must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.</p> <p>-665(6)(a) -806(4)(a)(xiii) -806(4)(h)(v)</p>								
<p>-610(3)(a) -665(6)(a)</p> <p>-665(8) Action leakage rate. (a) The department must approve an action leakage rate for landfill units subject to subsection (2)(h) or (j) of this section. The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding 1 foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must consider decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.). (b) To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subsection (2)(h) of this section to an average daily flow rate (gallons per acre per day) for each sump. Unless the department approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and monthly during the post-closure care period when monthly monitoring is required under subsection (9) of this section.</p> <p>-806(4)(a)(xiii) -806(4)(h)(v)</p>	Add. H, Add. C, Add. I	5.5-6.	<p>LLBG Trench 31& 34 (Permit Conditions, Comment # 20)</p> <p>241-CX (Permit Conditions, Comment # 15)</p> <p>Hexone (Permit Conditions, Comment # 12)</p> <p>LLBG Green Islands (Permit Conditions, Comment # 9)</p>					

[INSERT UNIT GROUP TITLE HERE]								
Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
<p>and each replacement of an existing landfill unit that commences reuse after July 29, 1992, must install two or more liners and a leachate collection and removal system above and between such liners. "Construction commences" is as defined in WAC 173-303-040 under "existing facility."</p> <p>(ii) The leachate collection and removal system immediately above the top liner must be designed, constructed, operated, and maintained to collect and remove leachate from the landfill during the active life and post-closure care period. The department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed twelve inches (30.5 cm). The leachate collection and removal system must comply with (h)(iii) and (iv) of this subsection.</p> <p>-665(6)(a) -806(4)(a)(xiii) -806(4)(h)(v) -610(3)(a)</p>			<p>241-CX (Permit Conditions, Comment # 15)</p> <p>Hexone (Permit Conditions, Comment # 12)</p> <p>LLBG Green Islands (Permit Conditions, Comment # 9)</p>					
<p>-665(2)(h)(iii) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of dangerous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The requirements for a leak detection system in this subsection are satisfied by installation of a system that is, at a minimum:</p> <p>(D) Designed and operated to minimize clogging during the active life and post-closure care period; and</p> <p>(E) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump(s). The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.</p> <p>(iv) The owner or operator will collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner.</p>	Add. C, Add. H, Add. I	5.5-5.	<p>LLBG Trench 31& 34 (Permit Conditions, Comment # 20)</p> <p>241-CX (Permit Conditions, Comment # 15)</p> <p>Hexone (Permit Conditions, Comment # 12)</p> <p>LLBG Green Islands (Permit Conditions, Comment # 9)</p>					

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-665(6)(a) -806(4)(a)(xiii) -806(4)(h)(v)			241-CX (Permit Conditions, Comment # 15) Hexone (Permit Conditions, Comment # 12) LLBG Green Islands (Permit Conditions, Comment # 9)					
-610(3)(a)(vi) -665(2)(e) Collection and holding facilities (e.g., tanks or basins) associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously and in accordance with this chapter after storms to maintain design capacity of the system. -665(6)(a) -806(4)(a)(xiii) -806(4)(h)(v)	Add. H, Add. C	5.5-9.	LLBG Trench 31& 34 (Permit Conditions, Comment # 20) 241-CX (Permit Conditions, Comment # 15) Hexone (Permit Conditions, Comment # 12) LLBG Green Islands (Permit Conditions, Comment # 9)					

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Closure Regulatory Requirements in WAC 173-303	Requirement location in Draft Rev. 9 Permit	Check-list Question #	Conceptual Agreement (See Section 4.5 Table)	DWMU Type (e.g., tank system, container storage area, surface impoundment, landfill, etc.) (Simple text only. No formatting or hard returns)	Requirement Met? Y, N or N/A	Deficiency (summary) (Simple text only. No formatting or hard returns)	Proposed Solutions (summary) (Simple text only. No formatting or hard returns)	Comments (Simple text only. No formatting or hard returns)
-610(3)(a) -665(6)(a) -665(8)(b) -806(4)(a)(xiii) -806(4)(h)(v)	Add. H, Add. I	5.5-6.a.	LLBG Trench 31& 34 (Permit Conditions, Comment # 20) 241-CX (Permit Conditions, Comment # 15) Hexone (Permit Conditions, Comment # 12) LLBG Green Islands (Permit Conditions, Comment # 9)					
-610(3)(a)(vi) -665(2)(c) The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a twenty-five-year storm. -665(6)(a) -806(4)(a)(xiii) -806(4)(h)	Add. C, Add. H, Add. I	5.5-7.	LLBG Trench 31& 34 (Permit Conditions, Comment # 20) 241-CX (Permit Conditions, Comment # 15) Hexone (Permit Conditions, Comment # 12) LLBG Green Islands (Permit Conditions, Comment # 9)					
-610(3)(a)(vi) -665(2)(d) The owner or operator must design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a twenty-four-hour, twenty-five-year storm.	Add. H, Add. C, Add. I	5.5-8.	LLBG Trench 31& 34 (Permit Conditions, Comment # 20)					

8. CONSISTENCY TOOLS

The following standard closure Permit condition language must be included in Part III (Operating) and Part V (Closure) unit group permit conditions.

Standard permit condition for operating and closure unit groups.

- The Permittees must close the dangerous waste management units in the [*Applicable Unit Group*], in accordance with the Addendum H, Closure Plan.”

If a HFFACO Milestone exists for submittal of a closure plan for dangerous waste management units in the unit group, the following permit condition language must be included in Part III (Operating) and Part V (Closure) unit group permit conditions.

Standard permit condition for operating and closure unit groups with HFFACO milestones for submittal of closure plans.

- The Permittees must comply with the requirements and schedules related to submitting revised closure plans for dangerous waste management units in the [insert *unit group*; e.g., *216-B-63 Trench Closure Unit Group 21*], in HFFACO Action Plan, Appendix D, Milestone [*list milestone*; e.g., *M-37-02*], or as otherwise established in or developed and approved under the HFFACO, as amended, which are by this reference incorporated into this Permit under the terms of Permit Condition I.B.1 and apply under this Permit as if they were fully set forth herein.

APPENDIX A – Dangerous Waste Management Unit Types in the Unit Group Chapters of the Hanford Dangerous Waste Permit

Facility	Tank System	Surface Impoundment	Landfills	Container Storage	Containment Bldg	Misc. Units	Piping or Ancillary Equip.
WAC 173-303	-640(8)	-650(6)	-665(6)	-630(10)	-695 40 CFR 264 264.1102(a)	-680(2)	
	(1)	(2)	(3)	(4)	(5)	(6)	
Single-Shell Tank System	X						X
Double-Shell Tank System & 204-AR Waste Unloading Station	X						X
241-CX Tank System	X						X
Hexone Storage and Treatment Facility	X			X			X
Waste Treatment and Immobilization Plant	X			X	X	X	X
Liquid Effluent Retention Facility & 200 Area Effluent Treatment Facility	X	X		X			X
207-A South Retention Basin		X					
216-B-63 Trench		X					
216-A-29 Ditch		X					
216-B-3 Main Pond		X					
216-A-36B Crib						X ^a	
216-A-37-1 Crib						X ^a	
216-S-10 Pond & Ditch		X					
Integrated Disposal Facility			X	X			
Non-Radioactive Dangerous Waste Landfill			X				
Central Waste Complex				X			
242-A-Evaporator	X						X
325 Hazard Waste Treatment Units	X			X			
Waste Receiving and Processing Facility				X	X		
222-S Laboratory	X			X			X
Waste Encapsulation and Storage Facility						X	
T-Plant Complex	X			X	X	X	X

400 Area Waste Management Unit				X			
Low-Level Burial Grounds Trenches 31 & 34			X	X			X
Low-Level Burial Grounds Trench 94			X				
1301-N Liquid Waste Disposal Facility		X					X
600 Area Purgewater Storage & Treatment Facility						X	
1706-KE Waste Treatment System	X						X
B Plant Complex	X			X	X		
PUREX	X				X	X	
Low-Level Burial Grounds "Green Islands"			X				
324 Building						X	

Footnote:

(X^a) Ecology has determined the 216-A-36B Crib and 216-A-37-1 Crib are classified as miscellaneous units vs. landfills. The Part A and other affected sections of the Permit for these DWMUs will need to be revised to reflect the reclassification.